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The Child as a Wartime Problem

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ONE of the instincts we admire most in an animal is the one whereby the parent protects its young. There are no dangers which it will not face to guard them. This instinct is highly developed in the human race and upon this foundation has been built our social and medical effort to prevent wastage of young life. Some would say that our success in this direction is a measure of our state of civilization. I firmly believe so.

This war has taught us the importance of pooling our resources—I am thinking here not of nations, for which it is equally true, but of an old city of nearly half a million people in Great Britain, Bristol, and of the 110,000 families in that city. If they had never known it before, they discovered early in the war how dependent they were upon one another, how little they could depend upon their individual instincts and resources and how much strength there is in unity. This city, between June, 1940, and June, 1941, went through more than 500 "alerts." To the inhabitants of a target area at that time, an "alert" meant a good deal of gunfire, indistinguishable in the dark from the sound of exploding bombs, and the possibility, at any moment, of a high explosive or incendiary bomb falling somewhere near. It is of the efforts of that community under the guidance of the State to protect its young, that I would speak to you. The measure of success attained will be fully written when this war is over, but I can say here, as a guide to you, that the infant mortality rate for 1942, after more than three years of war, after many parents and more homes had been destroyed or broken up, was one of the lowest in the history of the city and was under 40 per 1,000 live births.

The Lord Mayor of Bristol, 1940–1941 (Alderman T. H. J. Underdown) has written a brief account † of the blitzed City of Bristol and, for a description of a raid, I cannot do better than to quote from this record:

"The 24th was a typical November [1940] day of dull leaden skies with a light mist towards sunset. As darkness fell, the alert was given and by 6:30 the skies over the

* Guest of the American Public Health Association at 17 state and regional meetings during May and June, 1943.

† Bristol Under Blitz: The record of an ancient City and her people during the Battle of Britain, 1940–1. Bristol: J. W. Arrowsmith, Ltd., 1942.

centre of the city were brightly lit by flares dropped from enemy 'planes. Then the fiery attack was let loose with utter ruthlessness. Showers of incendiary bombs kindled and spread the conflagration. High explosive bombs whistled and screamed to earth. Many were of extremely large calibre and spread the raging fires from building to building until whole streets were ablaze. The flames appeared as one huge fiery furnace leaping high into the air and giving an intensity of daylight over a great part of the City. The scene presented a veritable volcanic cataclysm. Crashes of high buildings and the volumes of flame, as castellated church towers carried the fires to greater heights, added a touch of grandeur to this inferno of terrorism. Men, afar off, scores of miles distant, gazed with wonder upon the illuminated skies as though peering into a mirror to learn the fate of a blitzed city.

"But while Bristol burned her people were bravely fighting. The Regular Police Fire Brigade led the van and was more than extended even with the support of 1,000 Auxiliary Fire Service men, ninety per cent. of whom responded to the call of duty within thirty minutes of the air-raid warning. Soldiers and naval men also co-operated splendidly. The men fought a great fight against overwhelming odds. During the first hour 70 fires were reported, mostly in the centre of the City. Every available appliance of the fire-brigade was brought into operation throughout the night and well on into the following day. Firemen were frequently diverted from their fire-fighting to save the lives of citizens. In this rescue work one officer faced the task of saving from a Home 35 elderly women, many of whom were invalids. Another diversion involved the evacuation of 60 horses from their stables. But the men fought on, several paying the supreme sacrifice on the altar of duty.

"Damage to the mains caused a failure of water supply. The reserve water from tanks and reservoirs was soon exhausted. There remained the supplies from the Avon and the harbour with the use of fire-floats. Meantime, assistance had arrived from other areas. The Bristol Fire Services were reinforced by 77 Fire Brigades from neighbouring counties, with an addition of 20,000 feet of hose from Cardiff, Newport, Bournemouth and Plymouth.

"Air-raid Precaution Wardens and Fire Watchers, both men and women, coped with a deluge of thousands of incendiary bombs, often preventing the raiders from finding their targets in many parts of the City. Of these brave wardens 19 men, 3 women and 2 messengers lost their lives. Other citizens, even children, bravely extinguished incendiary bombs which had fallen upon homes, churches and other valuable properties.

"At the centre the communication services of the A.R.P. functioned efficiently during the early stages of the raid. Reports came in from all the depots promptly, followed by action. But when the lighting failed the wardens and their staff were greatly handicapped. Graver danger soon threatened when fires spread from Union Street to premises adjacent to the A.R.P. Central Control. When the relentless flames quickly set a part of the Control ablaze a section of the staff was sent to the Emergency Control. Just as the remainder were about to set out a message was received that the fire at the Museum had spread to the University and that water in the basement was already inches deep. Faced with a terrible alternative, the A.R.P. Control bravely carried on at Central Control for over an hour, although the back and upper part of the building was in flames. With coolness and courage they held on at their posts of duty. One girl telephonist answered an enquiry and then added with a cheery voice, 'I'm afraid I can't say any more now. The flames are all around me!' Evacuation became inevitable. Then they made a hasty transfer in private cars and on foot through the streets of their burning and bombed city to the City Engineer's Office in Queen Square. There they functioned with improvised equipment and restricted accommodation through the remainder of the night."

. . . . .

"The Utility Services were greatly dislocated. In wide areas of the City the water supply was either totally cut off or at such low pressure that the higher levels could not be normally supplied. Water carts, both civic and military, conveyed adequate supplies for domestic use. Gas, electricity and the telephone system failed over many parts of the City. Dislocation of the sewerage system presented a difficult problem. A large number of unexploded bombs added to the difficulties of complete and prompt restoration of these public amenities. But with surprising promptitude the 'severed arteries' were restored. Efficient assistance was given to Bristol's reserve of labour by gangs from other towns and by the military forces. The Royal Engineers and Infantry rendered valuable help in demolition of dangerous ruins, site and street clearance, traffic control and diversion and first-aid repairs to houses.

Within a few days 2,000 men were engaged in repairs on a large number of the 10,000 houses damaged in the raid."

It may be said that there is no house in Great Britain which can be considered to be 100 per cent safe from air attack. It is not intended in this paper to discuss the effect of this upon morale, either of the people at home or of the fighting forces away from home, but one may say in passing that the justice of our cause has proved to be a remarkable stimulant in my country.

The appearance of enemy bombers near our homes made us consider:

A. THE SAFETY OF OUR CHILDREN

When children are at home their safety is bound up with that of the other occupants of the home. Our experience has been that the home, the ordinary brick cottage without strengthening and even without special protection inside it, is a remarkably safe place during the heaviest air raids. At a time when we did not have the various types of shelters that are now available, whole families emerged from their ruined house very little the worse for their experience. Casualties, especially among children, were far fewer than we expected. I need not tell you that the parents did all in their power to give the best protection they had to their children. This was brought out very clearly in an analysis made of casualties following one heavy night's raid. At that time about 50 per cent of the population had air raid shelters of some kind. On that same night nearly 10,000 houses were damaged, more than 400 beyond repair.

It is noteworthy that, whereas children under 16 years of age form about 20 per cent of the normal population of the city, on this occasion only 6 per cent of the casualties were children (see Table 1).

After standardization for age and sex distribution one could say that:

TABLE 1

	Males	*Females*	*Children under 16*	*Total*
Killed	117	90	22	229
Seriously injured	110	51	13	174
Lightly injured	189	49	10	248

1. Men took nearly double the risk of women and over three times the risk of children of being killed.

2. Men took nearly three times the risk of women and six times the risk of children of being seriously injured.

3. Conversely, were it possible for men and women to take the same precautions to protect themselves as were available for children, it may be assumed that the following casualties would have been avoided.

	Males	*Females*
From death	2/3	1/2
From serious injury	5/6	1/2

In order to protect children during the daytime when they were attending school, shelters were erected at all schools in the city. In schools where there was sufficient accommodation available, strengthened basements or trenches, or underground steel shelters were the types used. In schools lacking the necessary space for this, brick surface shelters were erected in the school grounds. Accommodation has been provided in school air raid shelters for 45,452 children at a cost of about £250,000.

The great difficulty, of course, in regard to schools, is the question of dispersal of the children and, in order to avoid casualties, we lay great stress upon this point. In no instance will a shelter erected at a school hold more than 50 children (equivalent in superficial floor space to 33 adults); even then it would be a catastrophe if one of these places received a hit.

We have no remedy against the solitary bomber flying behind cover of the clouds and dropping a bomb on a crowded school without warning of any kind.

B. EFFECTS OF AIR RAIDS

With regard to the general effect of

"alerts" and air raids upon children, particularly upon the school child and upon his life, some interesting papers have been published.

In February, 1941, Miss Dunsdon, our educational psychologist, made a survey of 8,000 school children to assess the evidence of strain following air raids and she found that 4 per cent (300) showed some signs of strain, either purely psychological or psychosomatic. One hundred and twenty was the figure she gave as suffering from psychological symptoms. These occurred twice as frequently in the 5–7 year group of children as in the 11–14 year group in whom psychosomatic disturbances were more frequent. Considering the severity of the raids, it shows how remarkably stable children are. The Deputy Director of the Bristol Child Guidance Clinic—Dr. Frank Bodman—has published a paper under the title "War Conditions and the Mental Health of the Child" in the *British Medical Journal* of October 4, 1941.

To those of us who have had an opportunity of observing the reaction of children to air raids, it has become quite clear that not only have the children stood up to raids in a quite remarkable manner, but they undoubtedly have been an example to the grown-up people. I would go so far as to say that the children of my city have contributed a good deal to public morale by their high spirits and their refusal to be intimidated by raids. I remember hearing a rather charming story of two children in an air raid shelter in one of our worst raids, when a girl aged 8 was heard to say to her small brother aged 6: "If you don't keep quiet, you won't hear a bomb fall."

C. INTERRUPTION OF EDUCATION

A report upon the interruption of the education of the children of Bristol was prepared for his committee by G. E. Sylvester, Chief Education Officer. Here are some extracts from his report:

"In the early days of raiding of Bristol, there was considerable interruption of education and the local authority was extremely cautious in bringing large numbers of school children together and exposing them to possible risks. All Bristol schools were closed on the outbreak of war, but were reopened for children over 7 years of age within about a fortnight; after another fortnight children between 5 and 7 were admitted, and a fortnight later children under 5 were readmitted to nursery schools and nursery classes. Because of shortage of shelter places, a double-shift system operated for a time at the end of 1939 and education was, therefore, on a half-time basis. Attendance at school was voluntary from the beginning of the war until May, 1940, when compulsory attendance was reintroduced. Even after the double-shift system was abolished, many children only attended part time because there was not sufficient shelter accommodation available.

"In the latter part of 1940, Bristol school children spent considerable periods of school hours in air raid shelters under conditions which made it next to impossible to carry on any form of education. In September, 1940, for example, during the battle of Britain, out of 21 school days, 'alerts' were sounded on 18 days 29 times and the actual duration of 'alerts' during school hours was 13 hours out of approximately 115 hours. In addition we should remember that considerable time was spent in getting to and from shelters and the excitement unsettled the children.

"The effect of long night raids of the winter of 1940 should also not go unnoticed. Children were tired the next morning, and if they came to school at all they were not in a fit condition to take part in the rigorous routine of school life. The difficulty

was partly met by an alteration of school hours and the later opening of schools in the morning, but there is no doubt that this factor of night raids also constituted an interruption of education."

D. JUVENILE DELINQUENCY

This leads me to mention the problem of juvenile delinquency.

1. *Nationally*—In the first twelve months of the war there was an increase nationally of 41 per cent in the number of children (under 14) found guilty of indictable offenses, and an increase of 22 per cent in the number of young persons (14–17) found guilty of such offenses. In the same period the increase of delinquency in the age group 17–21 was not more than about 5 per cent, and in the group 21 and over there was a decrease of about 2 per cent.

The increase in the volume of juvenile delinquency may be traced to a number of causes, including the absence of fathers on military service, the taking up of war work by mothers, the breaking up of home life owing to evacuation, the interruption of education owing to evacuation and the closing of schools in the early stages of the war, and the increased earnings of young people accompanied, for many of them, by a reduction in the facilities available in youth organizations, at any rate in the early days. In addition to these easily discernible causes, it would be unwise to ignore the effect of the excitement and unsettlement of the war, especially on adolescent boys.

2. *The local position*—In Bristol, the number of children found guilty of indictable offenses increased by 45.5 per cent in the first year of war, and the number of young persons by 5.5 per cent. There was a further rise in the second year of the war, but in 1941 there was a notable drop in the number of boy delinquents (both children and young persons).

From Mr. Sylvester's report:

"We do not wish to appear to minimize the seriousness of the increase in the volume of juvenile delinquency in the first two years of war, but we think it necessary to keep a sense of proportion in the matter. Close attention to the problem is very necessary, but its extent sometimes tends to be exaggerated and to be the subject of hasty generalisations which are not supported by the facts. The largest number of children and young persons found guilty of indictable offences in any of the last four years is 338 (1940–41). We estimate that the total number of children and young persons living in Bristol between the ages covered by these categories is about 50,000 and it will be seen that the proportion of these committing offences is not large in relation to the total number in the age group concerned. Moreover, the outlook for the young offender in the long run is very good, for statistics show that 90 per cent of the boys and girls who give trouble become useful citizens in life."

During the period of the war there has been in my city and, indeed, in Great Britain generally, a very great increase in what we call the "Youth Service." The Board of Education and the local education authorities have encouraged youth organizations, and in Bristol the number of boys in the membership of youth organizations has increased by nearly 200 per cent during the war, and the number of girls by more than 100 per cent. At the present time, more than 50 per cent of these boys and girls between 14 and 18 years of age are members of some form of approved youth organization. The movement is largely influenced by the ideal of service to the community and to other people. It is not too much to suggest that the decrease in the amount of juvenile delinquency at these ages during the war period can quite

definitely be associated with the growth of the Youth Service movements.

Our Child Guidance Clinic played an active part in sorting out cases and advising upon particularly difficult ones throughout this period. For their experience, I would refer you to a paper published in the *Lancet* of November 8, 1941, by Dr. Bodman and Miss Dunsdon under the heading "Juvenile Delinquency in Wartime."

Some of the local factors which have played a very important part in this question of juvenile delinquency, which I should like to mention, are the following:

About 30 schools were partially or completely put out of action. This affected more than 7,000 places of accommodation. In addition, several schools were temporarily put out of service.

Many of our younger male members of the teaching staff (189) are serving with the Forces—the fact of this large withdrawal of men teachers on the disciplinary training of boys must have considerable effect, particularly as these teachers were active in promoting out-of-school organized games and sports and were making an important contribution to the teacher/leader development of youth welfare centers, boys' clubs, and other youth organizations.

For many reasons too, the parents' outlook toward regular attendance in school seems to have been modified. One can well understand this mental attitude of many parents in view of the relatively less importance of education as compared with the safety and other matters in the wartime life of the child.

When all these facts are taken into consideration, it can be said that juvenile delinquency is not an outstanding result of war and air raids upon the City of Bristol.

E. EVACUATION

Bristol became an evacuation area at the end of January, 1941, and the first parties of children were evacuated about the middle of February. This followed urgent representation from the local authority's committees to the Ministry of Health. By that time we had been having severe air raids—a total of 28 from June 25, 1940 (which was the first upon Bristol), until the end of February, 1941, with a large number of casualties.

AIR RAIDS ON BRISTOL, JUNE 25, 1940, END FEBRUARY, 1941

Dead	711	1,521	2,780
Seriously injured	810		
Slightly injured	1,259		

I can only speak of this problem of evacuation from the point of view of the evacuating authority. There is no doubt that this is one of the greatest social experiments ever tried in Great Britain, and the full story of the effect upon the evacuated children and upon the homes in the reception areas and upon the people in those homes remains to be told. As an evacuating authority we had the great problem of trying to get large numbers of children transported in short spaces of time to less vulnerable localities.

I may be forgiven here for trying to give you a brief account of life in the city for several months preceding evacuation, when the city was subjected to severe bombing.

During these days shelters were extensively used. *Public shelters,* either brick surface shelters or trench shelters in public parks, etc., which were open for use to any member of the community, accommodated approximately 10,000 children every night. There was some overcrowding in this type of shelter in the early days of raiding and the children lost much sleep. This probably affected their education more than their health, for no great increase in any infectious illness was reported. When bunks were provided a number of mothers with children attended regularly every night whether an "alert" was sounded or not because they feared that if they did not stake out a regular claim to bunks and occupy them with

their families each night they might find, on arriving after the "alert," that their usual place had been taken by a stranger who had got there first.

The *communal* type of shelters, mostly brick surface shelters allocated to certain numbers of houses, or streets accommodated another 10,000 children, but only a small percentage of this number used them every night. Communal shelters were private, and allocated to groups of families. They were conveniently situated near the homes of these families and were only used to any large extent during actual raids.

Small shelters of the "Anderson" type were used by a large part of the population. In many housing areas this type of shelter was in common use, and it was the practice in these areas to put children to sleep in them regularly each night at "black-out."

Under these circumstances, the routine of the home had been greatly disturbed, the "alerts" usually sounded in the early evening, just at bath time. This part of the child's daily routine, therefore, either completely disappeared or was very much modified. The expected results followed—head vermin became prevalent. The problem of head vermin was very much eased by the use of Lethane (384 special). This is a mixture of organic thiocyanates in 50 per cent of highly refined petroleum oil. (The principal toxic ingredients are the beta-thiocyano-ethyl esters of a mixture of higher fatty acids and beta-butoxy-beta thiocyanodiethyl ether). It is strongly insecticidal and has no toxic effects for the users. Of great value for all types of infestation, it has been found very effective in the treatment of pediculosis capitis and for this purpose is prepared with liquid paraffin as *Lithane Brilliantine*. This preparation is massaged into the scalp thoroughly and the hair is combed twice daily for a week, using a fine steel comb. Lice are killed instantaneously and the worst cases require only two applications. This treatment is the best we know for pediculosis capitis in school children and never seems to fail.

Well, these were the children that were evacuated. In one day we succeeded in evacuating 6,370 children from elementary schools to Devon and Cornwall. We undertook to see that all these children were thoroughly inspected and cleansed and equipped with proper clothing before they went. The task of inspecting, cleansing and equipping was undertaken during the week prior to evacuation. The task was no small one. The incidence of uncleanliness, scabies, impetigo, and pediculosis was higher than at any time previously, and all of these conditions had to be dealt with during the one week prior to the departure of the children. Moreover, to make the problem harder, these 6,370 children were located not in one but in twenty schools.

All of them received a complete inspection. The first took place four to six days before leaving the city, and the condition of each child was recorded on a special card. Special attention was given to cleanliness, verminous and skin conditions, infectious states, and the difficult child was indicated—the bedwetter and the child with behavior problems—as far as these could be ascertained.

The routine of this preliminary inspection was organized on the "Survey" system. Thirty-four school nurses and health visitors gave assistance to the five available school medical officers, and clerical help was provided by the teachers. Sometimes three or four of the smaller schools had to be covered by the same group of workers in one day, and for this the team was transported from school to school in casualty service vehicles.

Each child was undressed and completely inspected by a nurse. Upon the slightest suspicion of defect the child

was seen by a doctor at a separate table and the condition was more completely assessed. In this way 20 per cent of the children were labelled for treatment. Then the task of remedying the defects had to be accomplished. This was started immediately. Skin conditions, such as scabies and impetigo, and minor ailments were referred to local clinics for treatment. The normal routine of these clinics was temporarily suspended so as to give all affected children a chance of being cleared, and the treatment was active and thorough, so that the large majority were cleared within a week.

Problem children were set aside so that separate arrangements for evacuation, such as into hostels, could be made.

Head lice were the main difficulty. Approximately 15 per cent of the children, ranging from 3 per cent to 20 per cent according to the school locality, were found to be infested with head lice to a greater or lesser degree. It was realized at an early stage that separate arrangements would have to be made for the mass delousing of these children and for this purpose nurses of the Civil Nursing Reserve, "standing by" between night raids, were recruited. These volunteers, fifty in number, underwent a brief period of instruction before starting on the heads. A high standard was set. No child was to be allowed to depart with a single nit. Heroic measures were sometimes necessary in the worst cases but no verminous child left Bristol.

The final inspection took place within 24 hours of departure and was conducted on the same principles. During this inspection particular attention was paid to cleanliness, and to the children found defective at the preliminary examination. As a result of these examinations only one-half of one per cent of the children were considered unfit to travel, and most of these were cases of scabies that could not be cleared in time. The task was completed within a week.

Altogether 21,000 children were evacuated from Bristol during the succeeding six months; 14,000 under arrangements made by the local authority, and 7,000 to billets secured privately by their parents. Of this number, a total of 8,000 still remain out of the city.

Outstanding among the lessons learned from this inspection were the extent to which shelter life can intensify all the problems of infestation, and the extent of the effects of even a temporary disruption of the social care normally given to school children.

All children who were not properly clothed were provided with all the necessary articles before they were evacuated. During the whole time that they are away continual watch is kept to see that they are adequately and suitably clothed, and if the parents are unable to provide what is necessary, the local authority supplies the need. I make special reference to this because we in Bristol recognize the tremendous debt we owe to the American organizations which have so kindly sent such generous gifts of clothing for our children. I would assure you that these are all well used and most gratefully appreciated.

F. RESIDENTIAL NURSERIES

What has been said about evacuation applies mostly to children over 5 years of age. We still had the problem of the children under 5. For obvious reasons it would be impracticable to expect that they could be billetted out. The only possible way of dealing with them was to take over country mansions and establish residential nurseries. A considerable amount of work was involved in obtaining the necessary accommodation and in rendering it suitable and equipping it for use as a

nursery. Some of these nurseries were administered under the supervision of a head teacher (as a residential nursery school) with a resident nurse adviser. Into these nurseries, the children aged 2–5 years were evacuated. Some were established as residential nurseries under a trained nurse-matron. The children under 2 years of age were evacuated to nurseries under the supervision of trained nurses and a deputy with nursery attendants working under them. The units were mostly of 30/40 children. Arrangements were made for medical supervision by local general practitioners. At present (March, 1943) there are 16 residential nurseries with a total accommodation for 473 children.

G. HOLIDAY SCHEME

The delay in operating the scheme for children under 5 years of age resulted in great strain being placed upon the mothers who had children of this age in the city during the "blitz," and in the spring of 1941 the City Council approved a Holiday Scheme for mothers and children. By this time, Bristol had suffered very badly and the more fortunate adjacent country areas were very sympathetic toward the citizens. Prominent people in these areas helped in the scheme and mothers and children were sent for a fortnight into the homes of families in these adjacent areas. Some towns (like Sidmouth, Devon) undertook to bear the cost involved; otherwise the Lord Mayor's War Services Fund to which American citizens have many times so generously given, helped to defray the expense. In one area a large camp was organized where mothers and children spent part of the summer of 1941, and some of the Oxford colleges were also used as guest houses. To the end of February, 1943, 6,208 people were sent away under this scheme. Every person sent had to have suffered as result of raiding.

H. PRESENT PROBLEMS

I have already mentioned that one of the results of the war is that the young fathers have nearly all disappeared from the city. Those that remain are employed strenuously on war duties and in any case the father is not able to do much in the way of supervision of his children. It is a peacetime problem of great importance to know what to do with the children when the mother falls ill and the home cannot depend upon friends and relations. Friendship comes to the rescue quickly in case of illness, but it cannot be strained too much. We know, for example, that many a mother has left the sanatorium before treatment is completed because her children at home have given too much trouble to friends and relations. Many husbands in peacetime have had to stay away from work because there was no one else to look after the child when the mother was ill. This has been a severe drain upon the family exchequer, often resulting in poverty. In wartime this same problem has been vastly accentuated and there appears to be but one solution—the establishment of residential nurseries by local authorities. The demand for these has therefore increased considerably as the direct result of the war, and every effort is being made in Bristol to provide this accommodation.

I. WARTIME NURSERIES

Another urgent problem today is how to care for children under 14 years of age while the mother is at work and away from home. In order to face this problem, and the growing need for more women on work of national importance, the Government have instructed local authorities to establish wartime nurseries. Here children under 5 years of age may be taken by a mother on her way to work and collected on her return in the evening. For a small pay-

ment the children are cared for and receive all their meals. So far (March, 1943) we have prepared accommodation for about 750 children in these nurseries in Bristol.

J. DAILY GUARDIANS SCHEME

It became clear that the normal rate of provision of wartime nurseries would not meet the problem, for mothers were quickly drafted to industry and munitions. In the late months of 1941, a scheme was devised which would allow for the greatest possible release of women for war work and at the same time take into account the mother who could not leave her home. Under this scheme of Registered Daily Guardians, a woman who cannot leave her own home can register as a "daily guardian." She agrees to take into her own home one or more children under 5 years of age (according to her accommodation) and to care for them each day while their own mothers are at work. Each "guardian" is visited and approved by the local authority, and the Ministry of Labour makes a payment to the guardians. The scheme has gained popularity and runs smoothly in Bristol where at the present time over 200 children under 5 years of age are in the care of "daily guardians." Contact is usually first made between the Ministry of Labour and the local authority, but in many instances the mothers concerned make their own arrangements and then come forward for approval and payment.

K. SCHOOL CANTEENS

The provision of wartime nurseries and the organization of the "Daily Guardians" scheme do not cover the whole of the problem, however—there remains the problem of the child of school age. In an effort to help in its solution, the Bristol Education Committee commenced a scheme whereby every child in an elementary school can obtain ⅓ pint of milk each mid-morning, and can obtain a hot midday meal. Meals are not available at every school in the city, but arrangements have been made so that the children from the schools lacking the necessary accommodation can quickly go to a central school for their meal. The teaching profession in the city is supporting this scheme by adding to its responsibilities the supervision of the children in the middle of the day. The Bristol Education Committee is at present bringing into operation a big scheme to increase the supply of meals in school canteens. We hope that the effect of this will be to increase the number of children taking a midday meal at school from 4,000 per day, which is the present figure, to something like 12,000 a day.

L. PLAY CENTERS

The provision of a midday meal for all elementary school children was a step toward the solution of the vast problem of the care of the school child, but it could not cover the after-school hours, when mother and/or father is still at work, nor could it cover the holiday period.

In eighteen centers of Bristol at the present time "youth welfare centers" are established where boys and girls can remain to gain both knowledge and recreation for a couple of hours following afternoon school. Such subjects as arts and crafts and physical training are taken.

This year the Bristol Education Committee has made provision for the opening of playing fields during the summer months, where boys and girls can spend their evening leisure time in healthy exercise and allow their mothers to work undisturbed by worry as to their welfare. The playing fields are available for all children. Should the weather be wet, arrangements are to be made for certain schools to be

opened in the evening hours as "play centers" and "youth welfare centers." To these only the children of war workers will be allowed to come. The centers are staffed by paid officers of the Education Committee.

It has been my purpose in this paper to show how public health authorities in Britain, while concentrating every effort on the immediate task, have succeeded in making provisions for the care of children. In peacetime it hardly seems necessary to draw attention to the need for protecting the life of a child and the development of its health. In wartime, however, life appears too cheap, so many young adults developed with such care are slaughtered on the field of battle and, in modern warfare, even mothers and children in their own homes. It would be easy therefore to divert all energy and material resources from any long-time policy. Only history can judge the measure of our success in keeping the balance steady.

Laboratory Examination of Eating and Drinking Utensils*

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IN recent years public health authorities have been giving increasing attention to the proper cleansing and subsequent handling of glassware, dishes, and other utensils that are used in establishments that serve food and drink to the public, and various procedures have been developed here and there for the laboratory examination of such equipment. Attention has centered on the examination of drinking glasses, cups, forks, and spoons, because it is these utensils that come in contact with the mouths of users. Plates and other utensils, however, are sometimes examined; and it is obvious that if contaminated cups and drinking glasses are washed in insufficient water, or in water inadequately heated, and other utensils are washed in the same water, the whole may become contaminated.

The term "sanitization" has been coined to apply to cleansing and handling of eating and drinking equipment. Methods and proposed standards for the examination of the efficiency of sanitization in restaurants, soda fountains, bars, and similar establishments are, to date, only tentative, and the purpose of the present study was to make some contribution to the subject.

LITERATURE REVIEW

A committee of the American Public Health Association [1] proposed a procedure for the bacteriological examination of eating utensils. The principal features of the test were: the multiple spoon test, in which spoons are shaken in sterile salt solution; the multiple glass test, in which glasses are swabbed with damp swabs and the swabs agitated in tubes of sterile salt solution; the multiple plate test, in which measured areas of plates are swabbed with damp swabs that are then agitated in sterile salt solution. All resulting suspensions are plated in the usual way. No mention is made of the time that suspensions may be held before plates are made.

Among the authors who have reported investigations of methods for evaluating the sanitary condition of eating and drinking utensils are Fellers, Levine, and Harvey,[2] Krog and Dougherty,[3] Mallmann,[4] Speck and Black,[5] and Ward and Dack.[6] A compilation of procedures was published by the Public Health Committee of the Cup and Container Institute.[7] This compilation includes some of the publications mentioned above and also some others, among them being methods used in several municipalities.

Most of the procedures mentioned make use of dry swabs as such, dry swabs moistened in sterile fluid, or

* Contribution No. 475 of the Massachusetts Agricultural Experiment Station.

swabs sterilized in fluid. The general routines call for shaking or for rotating the swabs in a suspending fluid. Then the suspension is plated. In a few instances swabs are also streaked on special media for the detection of special groups of bacteria.

The most commonly used suspending fluids are sterile distilled water or sterile physiological saline. Hucker, et al.,[8] in a report on food utensil sanitation, employed a "phosphate buffer solution," and the procedure of the New York State Department of Health[9] specifies that Butterfield's phosphate solution[10] shall be used. Standard nutrient agar is the most frequently used medium. Hucker[8] used a medium containing tryptone, sucrose, gelatin, yeast extract, and K_2HPO_4. The procedure in use at Dayton, Ohio, employs dextrose agar, and tryptone glucose extract agar is used in Springfield, Ill. In some instances special media are used in addition to the plating medium. Fellers, Levine, and Harvey streaked swabs on Loeffler's blood serum in an effort to isolate "pathogens," and Ward and Dack used veal infusion agar for *Eberthella typhosa* and *Staphylococcus aureus*, and injected guinea pigs to test for *Mycobacterium tuberculosis*. The presumptive test for the coliform group of bacteria has been used in some technics.

In addition to the swabbing technic, Hucker,[11] and Walter and Hucker,[12, 13] have reported the use of a "contact plate" method in the place of swabbing methods for rapid tests.

Few of the procedures give any directions as to the length of time that may be permitted to elapse between swabbing and plating. Fellers, Levine, and Harvey state that swabs should be returned to the laboratory within 2 hours after the swabbing; the procedure employed at Washington, D. C.,[7] permits 3 hours to elapse; the Michigan Agricultural Experiment Station procedure states that swabs should be returned to the laboratory "immediately." The Standard Methods tentative procedure does not mention the time factor.

The list of procedures referred to here is not intended to be complete, but rather to give a cross-section view of those in common use. All are more or less tentative and changes may be expected as new information on the subject becomes available.

TYPES OF SWABS

The experiments of the first series were concerned with the relative efficiency of damp and wet swabs for removing bacteria from contaminated drinking glasses. Dry swabs are specified in some procedures, and they could be of use in swabbing moist surfaces. However, in practical inspection, most if not all of the utensils swabbed would be dry, and a dry swab obviously would be ineffective. At the beginning of this investigation dry swabs were used, together with the moist and wet swabs. It soon became evident that the dry swabs were inefficient for removing bacteria from dry utensils, so their use was discontinued and no results appear in the tables.

Swabs were made by twisting absorbent cotton onto wood applicator sticks. Two kinds of swabs were used in the experiments; *damp swabs* that had been moistened, but not saturated, with distilled water before they were sterilized, and *wet swabs* which were sterile dry swabs dipped into sterile distilled water or other suspending fluid just before they were used. Excess fluid was removed from the wet swabs by pressing them against the wall of the container before they were removed from it. All swabs and suspending fluids were sterilized in an autoclave at 15 pounds steam pressure for 15 minutes. For the wet swabs it was necessary to sterilize swabs and fluid sepa-

rately and to dip the swabs just before they were used, because when the swabs were sterilized in the fluid the sticks became so limber that it was impossible to exert the pressure necessary to remove the excess fluid from the swab or to remove bacteria satisfactorily from the surface of a glass. The use of wire instead of sticks would remove this difficulty, but sticks were preferred because it was found that the best way to remove the bacteria from the swabs was to break the sticks just above the cotton with sterile forceps and drop the swabs into containers of sterile suspending fluid.

In swabbing drinking glasses the swabs were held in the fingers as near to the cotton as possible without contaminating the swab. After swabbing was completed the sticks were broken and the swabs were dropped into bottles containing 100 ml. quantities of suspending fluid. The bottles were shaken until the cotton fluffed out, and then suitable dilutions were made and plated. Plates were incubated for 48 hours at 37° C. and then counted. The procedure for making and using the swabs remained constant through the study here reported, and standard procedure was employed in making plates. The suspending fluid used was varied as indicated later. Nutrient agar was used for plating until another medium was substituted as indicated in the text.

In the first experiment straight-sided flat-bottomed drinking glasses of about ½ pint capacity were employed. These are referred to as glasses. They were sterilized and cooled, and then were dipped into a bacterial suspension to a depth of about ½ inch and rotated to insure complete wetting of the rims. They were then placed in a sterile rack and allowed to dry, and were protected from air contamination while they were drying. The organism employed was a strain of micrococcus isolated from a glass that had been used for drinking. The bacterial suspension was prepared by inoculating sterile nutrient broth and incubating for 24 hours at 37° C.

In this experiment sterile distilled water was used for dampening or wetting the swabs and for the suspending fluid. Glasses were dipped separately into four different suspensions of the micrococcus. These suspensions are designated in Table 1 as trials 1 to 4, inclusive. The glasses were allowed to dry, and some in each group were swabbed with two successive damp swabs and an equal number with two successive wet swabs. The second swab was used in each case to recover bacteria which had been missed by the first swab. Counts from the first swabbings were calculated as percentages of the respective total counts of both the first and second swabbings.

The total counts from the different glasses varied even with the same type of swab, probably because it would hardly be expected that contamination

TABLE 1

Comparison of Counts from Damp and Wet Swabs Used for Swabbing Drinking Glasses—First Counts Calculated as Percentages of Totals

	Counts from Damp Swabs				*Counts from Wet Swabs*			
Trial	*1st*	*2nd*	*Total*	*Per cent*	*1st*	*2nd*	*Total*	*Per cent*
1	8,400	600	9,000	93	7,800	600	8,400	93
2	2,000	200	2,200	91	14,700	200	14,900	99
3	11,000	980	12,180	92	34,500	1,100	35,600	97
4	9,100	800	9,900	92	2,750	320	3,070	90
Average Percentage				92				95

Note: Counts represent number of bacteria per ml. of suspension.

would be uniform. The percentage of the total for each glass recovered by the first swabbing was nearly the same for the two types of swabs. This suggested that the two types were about equally effective.

The possibility existed, however, that the damp swab did not remove as many bacteria as did the wet swab on either the first or second swabbing. If that were true, the apparent equality of the two methods in the first experiment would be misleading. In order to compare the results when damp swabs were followed by damp swabs on one series of glasses, and by wet swabs on another series, 24 sterile glasses were dipped into a suspension of the same micrococcus used before and dried. Twelve of the glasses were swabbed with three successive damp swabs each, and each of the other 12 with a damp swab and then with two successive wet swabs. Results are shown in Table 2. counts for the first swabs averaged 94 per cent of the totals, and when a damp swab was followed by two successive wet swabs the average for the first swabs was only 80 per cent of the totals. These data indicate that, when only one swab is used per glass, as would be the case in practical inspections, the wet swabs would be substantially more efficient than the damp swabs in removing bacteria from contaminated surfaces.

PERCENTAGE OF ORGANISMS RECOVERED WITH WET SWABS

Another trial was made to determine as nearly as possible the percentage of organisms that could be recovered from glasses with wet swabs. A bacterial suspension was prepared as before and equal measured quantities were spread on the rims of glasses by means of a sterile capillary pipette. The glasses were allowed to dry and then swabbed with one wet swab each, and the resulting suspensions were plated as in the preceding experiment. At the same time several portions of the suspension, each equal to the amount spread onto the glasses, were plated. The average of these counts was taken as 100 per

TABLE 2

Relative Efficiency of Damp and Wet Swabs as Indicated by Counts from Glasses

	Three Successive Damp Swabs—Count for First Swabs Calculated as Percentages of the Totals					*One Damp Swab Followed by Two Wet Swabs—Counts from First Swabs Calculated as Percentages of Totals*					
No.	*1st Swab*	*2nd Swab*	*3rd Swab*	*Total*	*Per cent*	*No.*	*1st Swab*	*2nd Swab*	*3rd Swab*	*Total*	*Per cent*
1	50,000	4,000	630	54,630	92	13	125,000	14,600	1,510	141,110	89
2	90,000	3,000	420	93,420	96	14	59,000	11,900	950	71,850	82
3	50,000	1,000	150	51,150	98	15	58,000	4,800	310	63,110	92
4	110,000	930	210	111,140	99	16	133,000	13,700	1,460	148,160	90
5	114,000	6,700	440	121,140	94	17	109,000	26,900	1,720	137,620	79
6	142,000	9,300	370	151,670	94	18	164,000	18,900	1,460	184,360	89
7	171,000	10,300	1,090	182,390	94	19	30,000	5,700	410	36,110	83
8	112,000	11,100	1,400	124,500	90	20	37,000	27,100	820	64,920	57
9	114,000	18,400	620	133,020	86	21	94,000	24,100	2,330	120,430	78
10	108,000	8,600	3,900	120,500	90	22	48,000	25,600	2,380	75,980	63
11	240,000	10,200	630	250,830	96	23	29,000	9,200	1,080	39,280	74
12	69,000	1,050	120	70,170	98	24	22,000	3,600	280	25,880	85
	Average Percentage				94		Average Percentage				80

Note: Counts represent number of bacteria per ml. of suspension.

cent and the counts from the glasses were calculated as percentages of this average. Results are shown in Table 3.

TABLE 3

Counts from Glasses Inoculated with Bacterial Suspension and Swabbed with Wet Swabs—Counts from Swabs Calculated as Percentages of Count from Suspension—33,900

Glass No.	*Count*	*Per cent*
1	27,700	82
2	35,700	105
3	29,800	88
4	34,800	102
5	26,400	78
6	32,900	97
7	29,200	86
8	22,000	65
9	27,900	82
10	24,500	72
11	25,500	75
12	26,100	77
Average Percentage		84

Note: Counts represent number of bacteria per per ml. of suspension.

The counts from the different swabs varied. While it is improbable that the inoculations on the glasses contained uniform numbers of bacteria, the procedure should be indicative of the efficiency of the swabs in recovering bacteria from glasses and utensils sufficiently to indicate whether or not the sanitization of these articles had been satisfactory. Some of the counts from glasses were approximately equal to the average from the suspension, the lowest recovery was 65 per cent, and the average was 84 per cent. This result indicates that if a representative number of glasses or other utensils are swabbed in any eating place, the result should make possible a practical evaluation of the sanitizing practices of the establishment.

FLUIDS USED TO WET SWABS

In the experiments reported up to this point, sterile distilled water was used to moisten or wet the swabs. Another experiment was done to determine the effect of using other fluids to wet the swabs. Three fluids were used: sterile distilled water, sterile tap water, and sterile physiological saline. Three series of swabs were wet with these respective fluids. Glasses were dipped into a bacterial suspension and allowed to dry. Then they were swabbed and the resulting suspensions were plated as in the preceding experiments. Two successive swabs were used on each glass and the count from the first swab in each instance was calculated as a percentage of the total of the two counts. The average of the percentages of bacteria recovered by the first swab for each fluid was as follows:

Wetting Fluid	*Average Percentage recovery on First Swab*
Distilled water	95.5
Tap water	95.8
Physiological saline	95.6

These results indicate that no one of these agents has any advantage over the others for the wetting of swabs.

SUSPENDING FLUIDS

It is obvious that plates should be made as soon as possible after glasses or other utensils have been swabbed, and some of the procedures in use or recommended specify that not more than 2 hours, or 3 hours at most, shall elapse between swabbing and plating. In the practical inspection of establishments serving food and drinks to the public it may happen that a considerably longer time will elapse, particularly if an inspector does his own laboratory work, as is often the case in smaller communities. He might spend a morning making inspections and taking samples, and do the plating in the afternoon. For this reason the effect of holding periods longer than 2 hours on the survival of bacteria in suspending fluids was investigated in in the effort to find a satisfactory fluid for the purpose.

The fluids selected for the first experiment were three that are commonly employed for this and other purposes:

distilled water, physiological saline, and Butterfield's phosphate solution.[10] Butterfield's solution is employed because it is buffered to prevent the solution becoming excessively acid, and this fact suggested additional fluids for use here: distilled water with added di-potassium phosphate, Butterfield's Formula C,[10] and Butterfield's phosphate solution with added sodium hydroxide to make the solution definitely alkaline.

Several persons were asked to dry-drink several glasses each: that is, the glasses were empty, but the subject wet his lips with his tongue and put a glass to his lips as if he were drinking from it. Several glasses were used by each person for each of the suspending fluids studied. The glasses were then allowed to dry and were swabbed with wet swabs. Plates were made immediately after the swabs had been dropped into the fluid, and again after the suspensions had stood at room temperature (about 22° C.) for 5 hours. All technic was the same as that used earlier except that a yeast-extract neopeptone agar containing dextrose was employed instead of nutrient agar. (Some work done after this investigation was under way indicated that the yeast-extract neopeptone agar gave better results than did the nutrient agar. In order that the continuity of the narrative may not be interrupted, the experiments with the medium are placed at the end of this report.) The results obtained with the several suspending fluids are shown in Table 4.

The highest percentage of survival (8.9 per cent) after 5 hours was in Butterfield's phosphate solution and the lowest (1.3 per cent) was in distilled water. The survival (2.3 per cent) in physiological saline was not much better than that in distilled water. The percentages of survival (8.0 per cent and 8.6 per cent respectively) in distilled water with added di-potassium phosphate and Butterfield's phosphate solution with added sodium hydroxide were nearly as good as that in Butterfield's phosphate, but his Formula C showed survival (2.6 per cent) nearly as low as that with physiological saline. None of the fluids, however, sustained the viability of the suspended bacteria satisfactorily for the 5 hour standing period.

The purpose of the next experiment was to determine how rapidly the numbers of bacteria decreased when swabs were held in suspending fluids. The experiment was set up in the same way as that just preceding, except that only physiological saline and Butterfield's phosphate solution were used—the former because it is a common diluting and suspending fluid, and the latter because it had given the best results of the fluids tried in the previous experiment. Twelve glasses were dry-drunk, dried, swabbed, and the swabs suspended in physiological saline; and 12 additional glasses were similarly treated and the swabs suspended in Butterfield's phosphate solution. Plates were made immediately after the swabs were

TABLE 4

Averages of Counts from Swab Suspensions in Various Fluids Held at Room Temperature—Counts at 5 Hours Calculated as Percentages of Counts at Beginning

Fluid	*Original pH*	*Count at Beginning*	*Count at 5 Hours*	*Percentage Survival*
Distilled Water	6.0	12,000	155	1.3
Distilled Water + K_2HPO_4	8.6	3,700	317	8.6
Physiological Saline	6.8	2,025	46	2.3
Butterfield's Phosphate Solution	7.2	10,230	911	8.9
Butterfield's Phosphate Solution + NaOH	9.9	11,400	912	8.0
Butterfield's Formula C	7.1	10,920	289	2.6

Note: Counts represent number of bacteria per ml. of suspension.

TABLE 5A

Counts from Swab Suspensions in Butterfield's Phosphate Solution Held at Room Temperature for Different Time Intervals—Counts at Beginning Taken as 100 Per cent and Subsequent Counts Calculated as Percentages

Glass No.	Beginning	%	30 Min.	%	60 Min.	%	90 Min.	%	120 Min.	%	150 Min.	%	180 Min.	%
1	12,700	100	6,800	53	3,900	31	3,300	26	2,600	21	1,500	12	1,100	9
2	12,600	100	10,000	79	6,000	48	5,900	47	3,800	30	2,700	21	2,300	18
3	6,100	100	3,700	61	2,400	40	2,000	33	1,700	28	1,000	16	800	13
4	9,200	100	4,900	53	2,500	27	2,200	24	1,300	14	1,100	12	900	10
5	15,800	100	7,300	46	3,800	25	2,900	18	2,000	13	1,000	7	800	5
6	14,700	100	7,700	53	5,200	35	2,900	20	2,200	15	1,800	12	1,500	10
7	25,200	100	17,000	67	15,600	62	9,000	36	6,200	24	5,700	23	3,100	12
8	21,500	100	15,200	71	12,600	59	8,700	41	7,100	33	4,600	22	2,300	11
9	6,800	100	5,600	82	4,600	68	3,100	46	2,300	34	2,000	29	1,000	15
10	40,500	100	30,200	75	19,500	48	8,900	22	5,100	13	2,500	6	1,200	3
11	26,100	100	12,900	50	12,100	46	10,000	38	5,400	21	2,900	11	1,500	6
12	4,800	100	2,600	54	1,500	31	700	15	200	4	200	4	100	2
Average Percentage				62		43.3		30.5		20.8		14.6		9.5

Note: Counts represent number of bacteria per ml. of suspension.

TABLE 5B

Counts from Swab Suspensions in Physiological Saline Held at Room Temperature for Different Time Intervals—Counts at Beginning Taken as 100 Per cent and Subsequent Counts Calculated as Percentages

Glass No.	Beginning	%	30 Min.	%	60 Min.	%	90 Min.	%	120 Min.	%	150 Min.	%	180 Min.	%
13	11,100	100	6,000	54	4,700	42	2,200	20	1,500	13	800	7	300	3
14	3,500	100	2,900	83	2,400	69	1,900	54	1,400	40	700	20	600	17
15	22,200	100	13,000	59	7,700	35	3,600	16	3,500	16	1,100	5	1,100	5
16	7,400	100	5,000	68	2,600	35	1,500	20	1,200	16	900	12	900	12
17	8,100	100	4,100	51	3,400	42	1,900	23	1,800	22	700	9	300	4
18	11,900	100	8,800	74	5,300	45	2,900	24	1,800	15	1,500	13	1,200	10
19	16,600	100	12,300	74	6,600	40	5,100	31	2,000	12	1,300	8	900	5
20	10,900	100	6,800	62	4,400	40	3,200	29	1,800	16	1,300	12	800	7
21	3,200	100	2,300	72	1,800	56	1,300	41	1,000	31	700	22	600	19
22	11,400	100	7,500	66	5,400	47	5,000	44	4,300	38	3,000	26	1,400	12
23	20,000	100	16,700	84	10,900	55	9,600	48	7,300	37	5,700	29	5,200	26
24	6,900	100	3,700	54	2,300	33	900	13	700	10	400	6	300	4
Average Percentage				66.6		44.9		30.2		22.2		14.0		10.3

Note: Counts represent number of bacteria per ml. of suspension.

TABLE 6

Counts from Swabs Held in Chilled Suspending Fluids up to Five Hours. Counts at 1, 2, and 5 Hours Calculated as Percentages of Counts at Beginning

	Physiological Saline								*Butterfield's Phosphate Solution*							
No.	Beginning	%	1 Hour	%	2 Hours	%	5 Hours	%	No.	Beginning	%	1 Hour	%	2 Hours	%	5 Hours	%
1	8,100	100	6,400	79	5,300	65	1,900	23	11	13,500	100	12,950	96	12,750	94	12,450	92
2	12,000	100	13,000	108	11,400	95	6,200	51	12	11,300	100	11,400	101	10,400	92	9,900	87
3	10,800	100	8,900	82	7,200	67	4,100	41	13	22,500	100	18,500	82	16,700	74	15,800	70
4	10,400	100	9,200	88	7,900	76	4,300	41	14	7,300	100	7,500	100	6,300	87	6,100	83
5	11,000	100	9,600	87	8,000	73	4,900	44	15	28,900	100	23,900	83	21,900	76	19,400	67
6	7,900	100	6,900	87	5,500	70	3,100	39	16	19,500	100	16,600	85	15,300	79	14,200	73
7	6,200	100	5,300	85	5,200	84	1,400	23	17	6,600	100	6,400	97	5,400	82	3,400	51
8	3,700	100	3,000	81	1,900	51	500	13	18	25,100	100	23,300	94	23,900	95	19,400	77
9	7,600	100	4,900	65	4,000	53	2,900	38	19	20,800	100	20,500	99	19,300	92	14,300	69
10	8,400	100	6,200	74	4,800	57	2,700	32	20	22,200	100	21,700	98	19,400	88	13,100	59
Average Percentage				83.6		66.1		34.5	Average Percentage				93.5		85.9		72.8

Note: Counts represent number of bacteria per ml. of suspension.

put into the respective fluids; then the suspensions were held at room temperature and plates were made at ½ hour intervals up to 3 hours. Results are shown in Tables 5A and 5B. There was a steady decrease in the counts throughout the holding period in both fluids, and even at 30 minutes the decrease was sufficient to make the results of little value in the practical testing of utensils. These findings indicate that holding periods of 2 to 3 hours, permitted in many of the proposed technics, would not give an adequate estimate of the sanitizing procedures in use at eating and drinking establishments.

EFFECT OF CHILLING ON THE VIABILITY OF BACTERIA IN SUSPENSION

In attempting to reduce the loss of bacteria held in suspension, it was decided to try the effect of chilling. Used glasses (dry-drunk) were swabbed as before and swabs from one series of glasses were put into chilled physiological saline and from another series into chilled Butterfield's phosphate solution. The suspending fluids had been chilled by immersing them in a bath of iced water, and the temperature of the bath was maintained at 3° to 5° C. Plates were made immediately after the swabs were dropped into the fluids, and at 1, 2, and 5 hours. Results are shown in Table 6.

The loss of bacteria was much less than in the same fluids held at room temperature (see Tables 5A and 5B). A summary of the comparison shows the following percentages of organisms surviving:

	Per cent Surviving		
	1 Hour	*2 Hours*	*5 Hours*
Butterfield's phosphate, room temperature	44.9	22.2	10.3
Butterfield's phosphate, chilled	93.0	86.0	73.0
Physiological saline, room temperature	43.3	20.8	9.5
Physiological saline, chilled	83.6	66.1	34.5

With the chilled suspensions Butterfield's phosphate solution gave definitely better survival percentages than did physiological saline. With the chilled phosphate solution the survival of organisms was such that suspensions held up to 1 hour should yield counts entirely satisfactory for evaluating the sanitary condition of eating and drinking utensils examined, and survival up to 2 hours would appear to be adequate for a usable interpretation of the counts to be made. This is important because holding periods of from 1 to 2 hours are almost unavoidable in practical field work. Even if suspensions should be held for as long as 5 hours it would still be possible to detect poor sanitization of utensils even though the borderline cases would get by. Results with chilled physiological saline would not be useful after 1 hour of holding.

The results obtained with chilled Butterfield's phosphate solution indicate that it can be recommended as a suspending fluid for the sanitary examination of eating and drinking utensils.

PRACTICAL APPLICATION

Up to this point all of the experimental work had been done in the laboratory, so it was decided to try the method under practical conditions. Several establishments serving food were visited as a sanitary inspector would visit them. Included were several boarding houses, a restaurant, and a bar. Drinking glasses supposed to be clean were swabbed with wet swabs, and physiological saline and Butterfield's phosphate solution were employed for suspending fluids. Bottles of these fluids were placed in iced water containers before they were taken from the laboratory and were kept chilled until the final plates were made. Swabs were dropped into the suspending fluid immediately after the swabbing was done; and as soon as possible,

TABLE 7

Practical Application of Procedure in Establishments Serving Food and Drink to the Public—Counts from Swab Suspensions in Saline and in Butterfield's Phosphate Solution Held for 2 Hours; Counts at 2 Hours Calculated as Percentages of Those at Beginning

Saline				Butterfield's Phosphate Solution			
Glass No.	Beginning	2 Hours	%	Glass No.	Beginning	2 Hours	%
1	560	390	70	13	450	420	93
2	330	220	67	14	330	280	85
3	1,470	1,260	86	15	1,660	1,540	93
4	1,120	740	66	16	1,090	980	90
5	1,320	980	74	17	1,300	1,210	93
6	1,430	1,110	78	18	1,500	1,400	93
7	440	380	86	19	330	260	79
8	3,770	2,860	76	20	3,040	3,060	101
9	2,330	1,440	62	21	2,970	2,960	100
10	1,190	880	74	22	1,210	1,070	88
11	1,270	910	72	23	1,200	1,100	92
12	1,170	1,030	88	24	1,230	1,120	91
Average Percentage			75				92

Note: Counts represent number of bacteria per ml. of suspension. Chilled suspending fluids were used.

always within 1 hour, the suspensions were returned to the laboratory where plates were made immediately and again after 2 hours.

Representative results are shown in Table 7. Counts at 2 hours are calculated as percentages of the counts made from the first platings. Again, results from Butterfield's phosphate solution were better than those from physiological saline. The average survival after 2 hours was 92 per cent for the phosphate solution, and only 1 of the 12 samples showed less than 85 per cent. With the physiological saline only 3 of 12 samples showed over 80 per cent survival, and 88 per cent was the maximum. The average was 75 per cent.

On the basis of these results, chilled Butterfield's phosphate solution was definitely superior to chilled physiological saline as a suspending and holding fluid, and the results again indicate that the chilled phosphate solution can be recommended as satisfactory for the practical testing of the effectiveness of the sanitization of eating and drinking utensils.

MEDIA

In the first few experiments of this investigation nutrient agar was employed for plating. This medium, however, probably does not adequately promote the growth of some significant types of oral bacteria, particularly streptococci. It is a matter of common knowledge that streptococci, and particularly non-pyogenic types such as *Streptococcus salivarius*, are common mouth flora. Dick and Hucker [14] proposed that the detection of oral streptococci be employed as a presumptive test for evaluating the sanitization of eating and drinking utensils. It appeared to be desirable, in the present study, to devise a medium that would be likely to produce good growth of streptococci and any other oral organisms that do not grow well on ordinary media.

In considering materials to be used in the new medium, it was decided to incorporate dextrose, neopeptone, and yeast extract. Dextrose is a growth stimulant for most bacteria. Neopeptone is suitable for the growth of bacteria that are fastidious in their feeding habits; it is recommended especially for cultivating pneumococci and streptococci. Lancefield [15] used neopeptone in her work on the classification of streptococci. Bacto-yeast extract has been used [16] to promote

growth of bacteria that are difficult to cultivate, and Hutner [17] used it in his basic medium in making nutrition studies with streptococci. The composition of the medium used here was as follows:

Neopeptone, Difco	10.0 gm.
Bacto-yeast extract, Difco	5.0 "
Dextrose	0.5 "
Sodium chloride	5.0 "
Bacto-agar, Difco	15.0 "
Distilled water	1,000.0 ml.

The reaction was adjusted to pH 7.5 and the medium was sterilized at 15 pounds steam pressure for 15 minutes. This medium, referred to earlier as yeast-extract neopeptone agar, is somewhat similar to that used by Hucker.[8]

A number of stock laboratory cultures of streptococci, both hemolytic and non-hemolytic, were streaked on plates of both media. Colonies were larger and growth in general was better on the yeast-extract neopeptone agar than on nutrient agar. Then a series of glasses were " dry-drunk " by several persons and swabbed. Suspensions from the swabs were plated on both media. Representative results are shown in Table 8. Definitely larger counts were obtained on the yeast-extract neopeptone medium, and colonies were larger in general than on the nutrient agar. Recommendation of the yeast-extract neopeptone medium seems to be justified for use in evaluating the sanitization of eating and drinking utensils.

TABLE 8

Comparison of Counts from Swab Suspensions on Two Media—Counts on Nutrient Agar Are Calculated as Percentages of Counts on Neopeptone-Yeast-Extract Agar

Glass No.	*Neopeptone-Yeast-Extract Agar*	*Nutrient Agar*	*%*
1	1,780	1,070	60
2	890	590	66
3	6,300	3,100	49
4	4,200	2,700	64
5	4,200	3,600	86
6	6,200	4,400	71
7	360	270	75
8	720	460	64
9	390	210	54
10	7,100	3,000	42

Note: Counts represent number of bacteria per ml. of suspension.

SUMMARY

Two kinds of swabs were used, designated as damp and wet swabs. The former were moistened in fluid and then sterilized in a test tube without additional fluid. The wet swabs were first sterilized dry in a test tube, then just before they were used they were wet thoroughly in sterile fluid and the excess fluid squeezed out against the side of the tube. The wet swabs proved to be definitely more efficient than the damp swabs in recovering bacteria from the rims of drinking glasses. Distilled water and physiological saline were equally satisfactory for wetting the swabs.

Several suspending fluids examined were: distilled water, physiological saline, Butterfield's phosphate solution, Butterfield's Formula C, distilled water with added K_2HPO_4, and Butterfield's phosphate solution with the pH value raised by addition of NaOH. The survival of bacteria in these fluids up to 5 hours at room temperature was investigated. Distilled water was least satisfactory, and Butterfield's phosphate solution gave the highest percentage of survival. None was sufficiently satisfactory for practical use. Saline and Butterfield's phosphate solution were again investigated and counts of suspensions were made at 30 minute intervals. Neither fluid sustained bacterial viability satisfactorily for even 30 minutes.

Bacterial suspensions were made in Butterfield's phosphate solution and in physiological saline, both of which were chilled by immersing the containers in an iced water bath. Butterfield's phosphate gave excellent survival at 1 hour

and satisfactory survival at 2 hours. Even at 5 hours the survival was sufficient to permit detection of definitely poor sanitization procedures. Practical field tests verified the experimental results.

A medium containing neopeptone, yeast extract, and dextrose gave much better growth of oral streptococci than did nutrient agar. It also gave higher counts and larger colonies than were obtained on nutrient agar.

As a result of this investigation the following recommendations are made:

1. Swabs should be made on wood applicator sticks and sterilized dry. Just before a swab is used it should be wet thoroughly in a sterile fluid and excess fluid squeezed from the cotton by pressing the swab against the inside wall of the container. The kind of fluid used to wet the swab makes little difference, but it would be well to use the same fluid that is used for suspensions.

2. Wet swabs should be rubbed thoroughly over the surfaces to be examined; then the sticks should be broken just above the cotton with flamed forceps and the swabs dropped into containers of sterile suspending fluid. The containers, preferably bottles, should be shaken until the cotton of the swabs fluffs out. Plates may be made in the usual way.

3. Butterfield's phosphate solution is recommended for use as a suspending fluid. Sterile containers—tubes or bottles—of the solution should be immersed in iced water and chilled before they are used, and kept chilled until plates are made. It is desirable that plates be made within 1 hour after swabbings have been done, but usable results can be obtained if it is necessary to hold the suspensions up to 2 hours. A longer holding period should be avoided if it is at all possible.

4. A medium should be employed that will support the growth of certain fastidious bacteria, and especially oral streptococci. Such a medium, consisting of 10 gm. neopeptone (Difco), 5 gm. Bacto-yeast extract (Difco), 0.5 gm. dextrose, 5 gm. sodium chloride, 15 gm. Bacto-agar (Difco), and 1,000 ml. water, pH 7.5, gave good results.

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Venereal Disease Epidemiology Third Service Command An Analysis of 4,641 Contact Reports

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IN the summer of 1940, the Army, Navy, Federal Security Agency, and state health departments entered into the well known Eight Point Agreement on measures to be developed for the control of the venereal diseases. Out of this joint agreement there has developed a great network of activities which should produce the lowest venereal disease rate in the history of the Armed Forces and should entangle in its meshes enough of the syphilis and gonorrhea in this country to curb the further spread of this blight on our national health.

The Army and Navy have undertaken to furnish to the civil health authorities information which will lead to the discovery of disease in the civilian communities. At the beginning of the program the forms used by the various Army stations for reporting contacts of venereal disease to the health authorities varied considerably in detail but the nature of the information which they conveyed was basically the same, that is, the name and address of the alleged contact, when obtainable, and her description. There has evolved from that heterogeneous collection the standard Army form, MD-140 " Report of a Contact of Venereal Disease," shown in Figure 1. The reverse side of the form is designed for reporting the result of the investigation.

The system instituted in the Third Service Command provides for the reports of the results of health departments' investigations to be routed back to the camp of origin through the Service Command Headquarters. Here, with the assistance of the Public Health

TABLE 1

Completeness of Information—Army Contacts, Third Service Command

March through December, 1942

	Sufficient Information for Possible Location of the Contact		*Sufficient Information for Referral for Possible Location of Focus of Infection*		*Insufficient Information for Referral for Any Purpose*		*Total Contacts Reported*	
Color	*No.*	*Per cent*	*No.*	*Per cent*	*No.*	*Per cent*	*No.*	*Per cent*
White	462	24.3	557	29.4	878	46.3	1,897	100.0
Colored	871	33.0	672	25.5	1,096	41.5	2,639	100.0
Other	25	23.8	32	30.5	48	45.7	105	100.0
Total	1,358	29.3	1,261	27.2	2,022	43.5	4,641	100.0

FIGURE 1

WAR DEPARTMENT, U. S. A.
(AGO Form 348, Revised Oct. 10, 1942)

REPORT OF A CONTACT OF VENEREAL DISEASE

STATION _____

To Health Officer _____ Date _____

A soldier _____ (Serial number) _____ (Organization) _____ (Name) _____ (Age) infected with _____ (Name of disease), exposed on _____ (Date) at _____ (Hour) and whose symptoms began _____ (Date) and diagnosis made on _____ (Date) gave the following information.

CONTACT HISTORY

ALLEGED CONTACT: Name (and nickname) _____

Address: _____ (Number, street, and city)

Race _____ Age _____ Height _____ Weight _____ Color eyes _____ Color hair _____

Other descriptive features _____

Occupation _____ Place of employment _____

TYPE OF CONTACT: ☐ Wife. ☐ Friend. ☐ Pickup. ☐ Streetwalker. ☐ Brothel. ☐ Call-girl.

PLACE OF EXPOSURE: ☐ Home. ☐ Hotel. ☐ Cab. ☐ Auto or trailer. ☐ Brothel. ☐ Other.

Name and address of place of exposure _____

CONDITION OF PATIENT AT TIME OF EXPOSURE: ☐ Intoxicated. ☐ Drinking moderately. ☐ Sober.

PROPHYLAXIS: ☐ None. ☐ Condom. ☐ Self-administered chemical, type _____

Official station _____ (Address) Date _____ Hour _____

PROCUREMENT HISTORY

PROCURER: ☐ Own effort. ☐ Pimp. ☐ Cabman. ☐ Waiter. ☐ Bellhop. ☐ Newsboy. ☐ Other.

Description of procurer _____

PLACE OF PROCUREMENT OR ENCOUNTER: ☐ Bus or R. R. depot. ☐ Hotel. ☐ Cab. ☐ Street. ☐ Tavern. ☐ Dance hall. ☐ Poolroom. ☐ Private property. ☐ Other _____

Name and address of place of procurement _____

AMOUNT PAID _____ To whom: ☐ Contact. ☐ Procurer. ☐ Other (specify) _____

REMARKS: _____

_____

Please report the results of your investigation on the reverse of this form.

(Signed) _____

(For instructions and distribution see final sheet in this pad)

Service Central Tabulating Unit, a statistical record is kept and an analysis of 4,641 contact reports covering the period March 1 to December 31, 1942, has been made in an effort to ascertain the relative importance of the component parts of the problem and to measure the effectiveness of the Army-Health Department Control Program.

Figure 2 shows that the reported contacts were distributed widely throughout the United States, although the Third Service Command comprises only the States of Pennsylvania, Maryland, and Virginia.

Table 1 represents an evaluation of the information furnished to the health departments. According to completeness, the information fell into one of three categories: (1) sufficient for the

REVERSE OF FIGURE 1

REPORT OF INVESTIGATION OF VENEREAL DISEASE CONTACT

To CHIEF, MEDICAL BRANCH

HEADQUARTERS THIRD SERVICE COMMAND, BALTIMORE, MARYLAND

The results of our investigation are as follows:

Infected with _____
(Name and stage of disease)

Under treatment: ☐ Prior to investigation. ☐ As result of investigation.

☐ Not infected.

☐ Not examined.

Information concerning the method and place of meeting and the place of exposure {has / has not} been called to the attention of law enforcement agencies.

(Signed) _____

location of the alleged contact; (2) sufficient to provide a possible lead for the location of the alleged contact or to point out places which appear to facilitate the transmission of disease; and (3) insufficient for any practical purpose. Each contact report was appraised on its face value by one of the authors. It is recognized, however, that this evaluation is not absolute because of the element of uncertainty or deliberate misrepresentation on the part of the informant. Nevertheless, the results of the investigations bear out the relative validity of the appraisal.

Table 2 shows the classification of the alleged contact. It indicates that the "prostitute class" (fee paid), namely the streetwalker, brothel inmate, and call-girl accounted for only 21.1 per cent of the infections, while "friend" or "casual pickup" (no fee) accounted for 72.1 per cent of the infections. The wife was named as the probable source or as an exposed contact in 6.6 per cent of the cases. Evidence from other sources seems to substantiate these figures. It was found that among the sources of infection of soldiers in the British Army 80 per cent were the "casual" or "amateur" type.[1] It has been stated that 85 per cent of the contacts of Australian soldiers are non-professional.[2] Venereal disease contact reports from nine continental naval stations during an 8 month period in 1942

TABLE 2

Type of Contact—Army Contacts, Third Service Command

March through December, 1942

By Number and Per cent

Color	*Wife*	*Friend*	*Pickup No Fee*	*Street Walker*	*Brothel*	*Call-girl*	*Other*	*Total Known*	*Total Contacts*
White	109	248	1,107	133	106	21	3	1,727	1,897
	6.3	14.4	64.1	7.7	6.1	1.2	0.2	100.0	
Colored	161	528	1,063	454	149	6	7	2,368	2,639
	6.8	22.3	44.9	19.2	6.3	0.2	0.3	100.0	
Other or Unknown	6	8	67	9	7	..	..	97	105
	6.2	8.2	69.1	9.3	7.2	..	..	100.0	
Total	276	784	2,237	596	262	27	10	4,192	4,641
	6.6	18.7	53.4	14.2	6.3	0.6	0.2	100.0	

Figure 2. DISTRIBUTION OF 4641 VENEREAL DISEASE CONTACTS REPORTED BY ARMY CAMPS IN THE THIRD SERVICE COMMAND.....MARCH THROUGH DECEMBER 1942

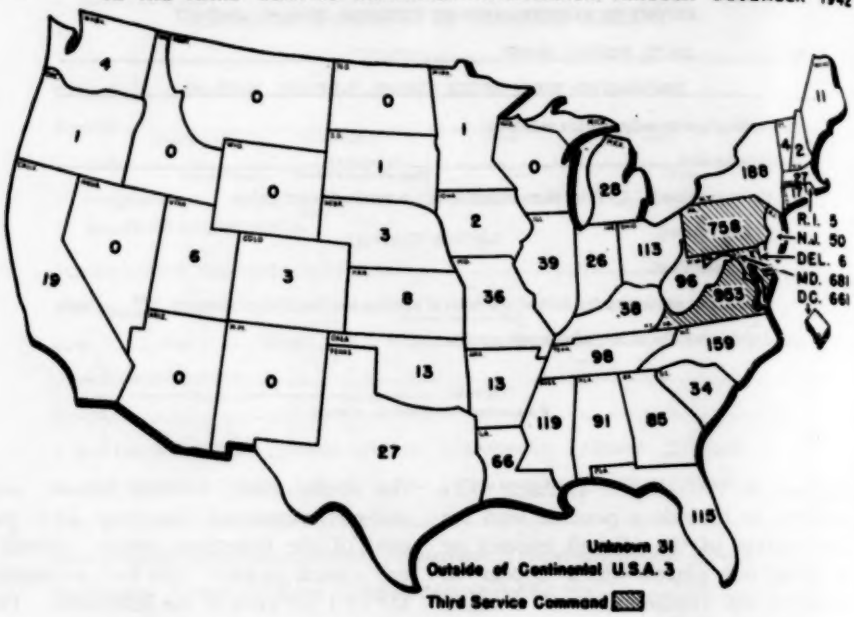

TABLE 3

Place of Procurement or Encounter—Army Contacts, Third Service Command

March through December, 1942

By Number and Per cent

Type of Contact and Color	*Bus or R.R. Depot*	*Hotel*	*Cab*	*Street*	*Tavern**	*Dance Hall*	*Home or Apt.*	*Other*	*Total Known*	*Total Contacts*
Clandestine										
White	45	30	6	405	504	47	79	141	1,257	1,355
	3.6	2.4	0.5	32.2	40.1	3.7	6.3	11.2	100.0	
Colored	17	19	2	405	465	48	256	197	1,409	1,591
	1.2	1.4	0.1	28.7	33.0	3.4	18.2	14.0	100.0	
Other–Unknown	2	..	..	19	28	..	..	10	59	75
	3.4	..	..	32.2	47.5	..	..	16.9	100.0	
Total	64	49	8	829	997	95	335	348	2,725	3,021
	2.3	1.8	0.3	30.4	36.6	3.5	12.3	12.8	100.0	
Prostitute										
White	3	38	3	58	56	2	2	83	245	260
	1.2	15.5	1.2	23.7	22.9	0.8	0.8	33.9	100.0	
Colored	7	10	..	208	212	16	27	109	589	609
	1.2	1.7	..	35.3	36.0	2.7	4.6	18.5	100.0	
Other–Unknown	..	..	..	4	6	..	..	6	16	16
	..	..	..	25.0	37.5	..	..	37.5	100.0	
Total	10	48	3	270	274	18	29	198	850	885
	1.2	5.6	0.4	31.8	32.2	2.1	3.4	23.3	100.0	
Total Non-familial	74	97	11	1,099	1,271	113	364	546	3,575	3,906
	2.1	2.7	0.3	30.7	35.6	3.2	10.2	15.3	100.0	

*Includes cafe, restaurant, night club

TABLE 4

Place of Exposure—Army Contacts, Third Service Command

March through December, 1942

By Number and Per cent

Type of Contact and Color	Home or Apt.	Hotel or Rooming House	Cab	Auto or Trailer	Brothel	Out-doors	Tourist Cabin	Other	Total Known	Total Contacts
Clandestine										
White	252	302	23	411	..	177	82	49	1,296	1,355
	19.4	23.3	1.8	31.7	..	13.7	6.3	3.8	100.0	
Colored	686	299	8	293	..	108	9	77	1,480	1,591
	46.4	20.2	0.5	19.8	..	7.3	0.6	5.2	100.0	
Other–Unknown	11	13	1	15	..	17	3	5	65	75
	16.9	20.0	1.5	23.1	..	26.2	4.6	7.7	100.0	
Total	949	614	32	719	..	302	94	131	2,841	3,021
	33.4	21.6	1.1	25.3	..	10.7	3.3	4.6	100.0	
Prostitute										
White	16	77	13	16	105	14	8	8	257	260
	6.2	30.0	5.1	6.2	40.9	5.4	3.1	3.1	100.0	
Colored	169	131	2	37	185	24	2	32	582	609
	29.1	22.5	0.3	6.4	31.8	4.1	0.3	5.5	100.0	
Other–Unknown	1	5	..	1	7	2	..	..	16	16
	6.3	31.2	..	6.3	43.7	12.5	..	..	100.0	
Total	186	213	15	54	297	40	10	40	855	885
	21.8	24.9	1.7	6.3	34.7	4.7	1.2	4.7	100.0	
Total Non-familial	1,135	827	47	773	297	342	104	171	3,696	3,906
	30.7	22.4	1.3	20.9	8.0	9.3	2.8	4.6	100.0	

indicate that 77 per cent of the infections were due to "girl friends" or "casual pickups."[3] In figures released by the United States Air Force, brothels were reported as being responsible for 5 per cent of the infections with "casual pickups" and "friends" accounting for 80 per cent.[4]

Table 3 shows the place of procurement or encounter. The tavern class, which includes restaurant, cafe, and night-club, leads with 35.6 per cent;

TABLE 5

Results of Investigation by Completeness of Information

Army Contacts, Third Service Command

March through October, 1942 *

By Number and Per cent

Completeness of Information	Not Infected	Under Trt. as Result of Invest.	Under Trt. Prior to Invest.	Infected—Not under Treatment	Total Located	Not Examined	Insuf. Info. for Invest.	No Dis. Position Returned	Total
Sufficient for Location of Contact	258	146	64	7	475	260	22	247	1,004
	25.7	14.5	6.4	0.7	47.3	25.9	2.2	24.6	100.0
Sufficient for Location of Foci of Infection	90	61	21	5	177	332	138	247	894
	10.1	6.8	2.3	0.6	19.8	37.2	15.4	27.6	100.0
Insufficient for any Purpose	10	14	7	1	32	274	279	690	1,275
	0.8	1.1	0.5	0.1	2.5	21.5	21.9	54.1	100.0
Total	358	221	92	13	684	866	439	1,184	3,173
	11.3	7.0	2.9	0.4	21.6	27.3	13.8	37.3	100.0

* The results of Investigation are presented only on 3,173 contacts reported through October, 1942, as a minimum of 2 months is allowed the health department to investigate the case.

street encounters were next with 30.7 per cent; and the remaining 33.7 per cent widely distributed as shown.

Table 4 shows the place of exposure and indicates that the home, apartment, hotel, or rooming house was named in 53.1 per cent of the cases. The automobile was next most frequently named with 20.9 per cent. Taxicabs and tourist cabins were mentioned less frequently than had been expected, namely 1.3 per cent for the former and 2.8 per cent for the latter.

Table 5 shows the results of the investigations by the health departments. Only those cases which were reported for investigation during the period March 1 to October 31, 1942, are included in this table, since the health departments were allowed at least 60 days in which to report the disposition before the cases were closed for this compilation. Of the 3,173 contacts reported during that period, reports of dispositions by the health departments were returned in 1,989 cases or 62.7 per cent. Located contacts amounted to 684, or 21.6 per cent, of which 326, or 10.3 per cent, of the total were found infected. It was found that 28 per cent of these were already under treatment by the time the investigation was made. Therefore, out of 3,173 reported contacts, only 234 previously unknown cases of disease were immediately uncovered. Eight hundred and sixty-six, or 27.3 per cent, could not be located upon investigation and no attempt was made to locate 439 contacts because of the lack of useful information.

COMMENTS

The Army has undertaken the task of securing contact information from all venereal disease patients in order that epidemiologic investigations may be made by the Civil Health Authorities. The Army is obliged, therefore, to determine whether or not the time and effort spent in initiating the process is justified by the results obtained. Are the health departments "following up" the contacts and are the infected contacts appropriately treated so that they will not infect more soldiers? Is the program contributing enough to the war effort to justify its continuance? These questions can be answered authentically only through such periodic analyses as the one here presented.

It appears from this analysis that at the present time 80 per cent of the problem depends upon the control of clandestine sources of disease. It is also apparent that the epidemiologic methods demonstrated in this study have definite limitations. It is our opinion, however, that the epidemiologic program, as it is now set up, could function with much greater effectiveness if the Army stations would exercise more care and diligence in obtaining contact information, and if the health departments would make full use of the information furnished. Although no attempt has been made in this paper to show the comparative effectiveness of the venereal disease control work in the several Army camps or by the various health departments, the authors have had the opportunity to make such comparisons from the basic data.

The Army personnel who interview the patients should be trained for this work. Those stations which have consistently furnished superior information have Venereal Disease Control Officers who appreciate the value of careful questioning. Some stations have made profitable use of trained health department interviewers. It has been shown to be important to interview the new patient before he has had an opportunity to be coached by his ward mates. The station which has consistently furnished the best contact information has a trained enlisted man who interviews the patient immediately upon admission, before he is taken to the ward.

Curiously enough, this same station has had the lowest average venereal disease rate of all stations in the Third Service Command.

A study of the reports from health departments indicated that the "follow-up" activities of some lack vigor and purposefulness. In many instances the investigations were delayed several weeks after the contact information had been received by the health department. The notation was often made that the alleged contact "refused to be examined," or, "has not reported to the clinic as directed." Many "could not be located," although the place of residence or place of employment was known. There was considerable evidence that some health officers failed to exercise the authority vested in them for the control of communicable diseases. On the other hand, it is expected that among the 1,184 unreported cases there are many upon which the health departments will report later. It also seems reasonable to assume that among the 684 contacts who were located by the health departments there were individuals who were responsible for more than one soldier's infection, but who may not have been recognized as the same person described on different contact reports. When the contact could be definitely identified, however, on more than one report and was located by the health department, it is possible that she may have been included in one of the "located" columns more than once. These possibilities should be borne in mind when critically evaluating the effectiveness of the program.

The fact that a diagnosis of disease was made in only about 50 per cent of the located contacts may be partially explained on the basis of the acknowledged deficiency of the laboratory diagnosis of gonorrhea, particularly in the female; also on the basis that many suspects may have recovered from their infection by the time the health department examination was made.

If health departments could develop as thorough case finding programs in their own clinics as the Army has done, and if private physicians would comply with the rules and regulations governing the reporting of venereal diseases, which are in effect in most states, and would take an active interest in venereal disease epidemiology, progress in bringing these diseases under control would be greatly accelerated.

It is evident also from this analysis that the interstate spread of the venereal diseases constitutes a serious problem. In spite of this fact the Interstate Quarantine Regulations governing the travel of venereally infected persons are seldom applied. The time may be opportune for revising these regulations by expanding their scope to cover not only the interstate traveler but also the individual who has exposed the traveler to disease. It would be impractical to attempt to enforce the existing regulations in the case of members of the Armed Forces.

Commercialized prostitution seems to be reasonably well repressed. The scattered remnants of the racket are permitted to survive only because of the tolerant, frequently patronizing, attitude on the part of public officials in certain communities. Any community can reduce commercialized prostitution to an insignificant minimum if it has a mind to do so.

SUMMARY

1. During a 10 month period, 4,641 venereal disease contacts (1,897 white, 2,639 colored, and 105 other) were reported to health departments. The dispositions of 62.7 per cent of the cases were reported back by the health departments.

2. Although reported by soldiers in the Third Service Command, the exposures took place with girls in all but 9 of the 48 states.

3. Thirty per cent of the contact forms contained information considered adequate for location of the contact; an additional 27

per cent contained sufficient information for possible location of the contact or of places in which venereal disease has been acquired; and 43 per cent contained insufficient information for any practical purpose. The colored soldiers gave slightly better information than the whites.

4. The pickup to whom no fee was paid was the leading source of infection (64 per cent white and 45 per cent colored). The streetwalker (fee) was responsible for about 14 per cent of the infections, and brothels 6 per cent. The paid prostitute constituted only one-fifth of the sexual contacts.

5. The tavern (cafe, restaurant, night-club) was the leading place of encounter for both clandestine contacts and prostitutes with "street" next in order.

6. The automobile was the most common place of exposure for white clandestine contacts and the home or apartment for colored. Hotels and rooming houses accounted for the next highest proportion for both white and colored.

7. The brothel was the most common place of exposure for both white and colored prostitutes but proportionately higher for white than colored. The hotel or rooming house ranked second for white prostitutes whereas the home or apartment ranked second among colored prostitutes.

8. Of the 3,173 contacts reported to health authorities by camps and stations in the Third Service Command, March through October, 1942, approximately 22 per cent were located by the close of the compilation period, December 31, 1942. Approximately 50 per cent of those located showed no conclusive evidence of infection at the time of examination. Of those found infected, 28 per cent were under treatment prior to the investigation.

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The Course of the Serologic Tests during Therapeutic Malaria in Patients with Syphilis*

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IN connection with investigations on the rôle of malaria in the treatment of syphilis, changes were noted in the quantitative serologic tests during the course of the induced infections. These findings form the basis for this report.

We know of no previous systematic study of the effect of malarial infection upon the quantitative determination of reagin in the serum of patients with syphilis. On the other hand, the development of a false positive serologic test for syphilis during the course of malaria in non-luetics seems to be well established by the recent investigations of Kitchen, Webb, and Kupper,[1] and of Burney, Mays, and Iskrant.[2] The earlier literature on this subject has been reviewed by Hazen and his collaborators.[3]

METHODS AND MATERIAL

All individuals included in this report were studied at Sing Sing Prison Hospital with the exception of 10 patients who were observed in collaboration with Dr. Evan W. Thomas at Bellevue Hospital. Patients with latent or central nervous system syphilis who were to receive malaria therapy were hospitalized on the day of inoculation and were permitted to have 6 to 8 febrile paroxysms. The infection was terminated with either quinine sulfate or atabrine. Intensive arsenotherapy with mapharsen was given either by intravenous drip[4] before or after the anti-malarial agents or by the multiple syringe method[5] which was given concurrently. With the former method the patient received the infusions on 3 consecutive days totalling 600 to 720 mg. of mapharsen while with the latter technic 10 daily injections of 60 mg. of mapharsen were given.

Thirty-three patients with latent or central nervous system syphilis were inoculated with *Plasmodium malariae* and 11 patients were inoculated with *Plasmodium vivax*. The strains employed have been in constant use for several years and have been observed to produce characteristic clinical infections in susceptible individuals.

To control our observations upon the changes in serologic tests in syphilitic individuals during the course of thera-

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peutic malaria, we are reporting serologic studies made on 50 patients with latent and central nervous system syphilis who were treated with fever induced by intravenous typhoid vaccine combined with intensive mapharsen drip therapy. In addition, we are recording our observations on a group of 25 patients with latent syphilis who received intensive mapharsen drip therapy alone. These 2 groups have been previously described.[4]

An analysis of the patients in these various therapeutic groups showed no significant differences regarding age or color, duration of the disease, previous therapy, and initial serologic titer. In general, the previous treatment was irregular and usually inadequate. The duration of the disease, when known, was evenly distributed between 3 and 20 years in all groups. The age groups would be too small to warrant a breakdown in that regard.

Serologic studies were done 3 times weekly during the course of induced malaria and daily during typhoid vaccine fever and arsenotherapy. All serologic studies were performed in the Division of Laboratories and Research, New York State Department of Health, Albany, N. Y. The complement-fixation test, which was done on all specimens, was the quantitative procedure described by Wadsworth, Maltaner, and Maltaner.[6] In addition, quantitative flocculation titers were determined simultaneously on many of the specimens obtained from the malaria treated patients, using both New York State[7] and Kahn[8] procedures. As the results obtained with these two flocculation tests were essentially identical, only the Kahn titers will be reported as this latter test has had more universal usage.

To control the effects of malarial infection upon serologic reactions other than those associated with syphilis, 6 patients were vaccinated with *Eberthella typhosa* antigen a few weeks prior to inoculation with *P. malariae*. Quantitative *E. typhosa* agglutination titers were then determined throughout the course of the malarial infection. The course of the antibodies was controlled by following the titers of 7 vaccinated patients who did not receive malaria therapy.

As this report is concerned only with the serologic changes referable to the actual malarial infection and not to the serologic response noted months later, the results presented include only those occurring during the febrile period and the subsequent week.

RESULTS

Tables 1, 2, and 3 refer to patients receiving therapeutic malaria and record the day following inoculation upon which the first febrile paroxysm occurred, the initial quantitative complement-fixation and Kahn flocculation titers just prior to inoculation, the first day upon which there was noted a tendency of the titer to rise or fall, and the maximal extent of that change. In the case of the complement-fixation test the maximal change is also recorded in terms of the percentage of the initial titer. The Kahn titers are expressed in units.[8] In all but two instances the trends were first noted during the course of the malarial infection but the progression frequently extended into the week following the last paroxysm. The highest or lowest levels reported, therefore may have occurred while the patient was receiving atabrine, quinine sulfate, or intensive arsenotherapy. The negative effect of the latter type of therapy upon the serologic titer is indicated by the control studies.

Of the 23 patients with central nervous system syphilis who were treated with *P. malariae* infection (Table 1), 22 exhibited a progressive fall in complement-fixation titer during the course of the febrile paroxysms. With the one

TABLE 1

The Changes in the Quantitative Serologic Titer in 23 Patients with Central Nervous System Syphilis During the Course of Induced Plasmodium Malariae Infection

		New York State Complement-fixation Titer				*Kahn Flocculation Units*		
				Maximum Changes				
Case Number	*First Paroxysm* *	*Initial Titer*	*Trends Observed* *	*Titer*	*Per cent of Initial Titer*	*Initial Titer*	*Trends Observed* *	*Levels Reached*
1	14	25	Fall — 20	8.9	36	3	Rise — 16 Fall — 23	240 2
2	9	3.6	Fall — 19	0	0			
3	11	36	Fall — 26	8.2	23			
4	5	41	Fall — 9	10	24	20	Rise — 11 Fall — 18	160 3
5	18	18	None	..	..	20	Rise — 27 Fall — 37	200 40
6	9	41	Fall — 20	15	36	80	Fall — 24	4
7	25	12	Fall — 20	1.7	14			
8	27	15	Fall — 34	2.6	17			
9	6	62	Fall — 16	24	38			
10	9	28	Fall — 19	9.3	33			
11	5	17	Fall — 14	7.2	43			
12	6	56	Fall — 17	27	48			
13	10	28	Fall — 28	16	57			
14	18	35	Fall — 27	5.3	15			
15	2	6.6	Fall — 11	2.4	36			
16	9	57	Fall — 24	19	33			
17	8	33	Fall — 27	15	46			
18	6	7.2	Fall — 14	0	0			
19	7	23	Fall — 13	4.7	20			
20	8	30	Fall — 24	5.9	20			
21	18	92	Fall — 28	27	29			
22	26	125	Fall — 35	50	40	160	Rise — 28 Fall — 35	320 80
23	7	7.4	Fall — 10	2.3	31	Neg.	Rise — 10 Fall — 17	20 Neg.

* Noted in days after inoculation with *Plasmodium malariae*

exception noted, the titer in each instance dropped to a level less than 60 per cent of the initial titer and in 7 instances the fall was to 20 per cent or less. Flocculation tests were done on 6 of the 23 patients. Only 1 showed a fall in Kahn units paralleling the drop in complement-fixation titer. The other 5, including the patient who showed no fall in complement-fixation titer, showed a significant rise in the level of Kahn units, although a subsequent fall was noted before the termination of the infection. Of the 10 patients with latent syphilis who were inoculated with *P. malariae* (Table 2), 8 showed a fall in complement-fixation titer to less than 60 per cent of the initial level. In 2 instances this fall was first noted just after, rather than prior

TABLE 2

The Changes in the Quantitative Serologic Titer in 10 Patients with Late Latent Syphilis during the Course of Induced Plasmodium Malariae Infection

		New York State Complement-fixation Titer				Kahn Flocculation Units		
				Maximum Changes				
Case Number	First Paroxysm *	Initial Titer	Trends Observed *	Titer	Per cent of Initial Titer	Initial Titer	Trends Observed *	Levels Reached
24	19	35	Fall — 21	15	43	40	None	..
25	20	33	None	..	..	20	Rise — 33	120
26	18	45	Fall — 18	24	53	20	Rise — 11	400
							Fall — 23	4
27	16	20	Fall — 17	4.6	23	20	Rise — 19	80
							Fall — 21	20
28	13	42	Fall — 17	14	33	20	Rise — 17	200
							Fall — 19	20
29	25	21	Fall — 35 †	10	48	40	Rise — 21	120
							Fall — 31	20
30	5	36	None	..	..	40	Rise — 12	320
31	6	22	Fall — 20 †	13	59	Neg.	Rise — 15	80
							Fall — 22 †	4
32	8	17	Fall — 15	10	59	2	Rise — 15	120
							Fall — 17	3
33	5	17	Fall — 10	8.2	48	40	Rise — 3	120
							Fall — 10	20

* Noted in days after inoculation with *Plasmodium malariae*
† Change observed after last malarial paroxysm during anti-malarial therapy

TABLE 3

The Changes in the Quantitative Serologic Titer in 11 Patients with Central Nervous System Syphilis during the Course of Induced Plasmodium Vivax Infection

		New York State Complement-fixation Titer				Kahn Flocculation Units		
				Maximum Changes				
Case Number	First Paroxysm *	Initial Titer	Trends Observed *	Titer	Per cent of Initial Titer	Initial Titer	Trends Observed *	Levels Reached
34	5	10	Rise — 13	98	980			
35	5	15	Fall — 8	5.3	35	20	Rise — 15	400
36	3	27	Rise — 13	50	185	20	Rise — 11	200
37	4	94	Fall — 9	58	62	80	Rise — 12	600
			Rise — 12	130	138			
38	8	25	Fall — 13	10	40	Neg.	Rise — 11	400
							Fall — 18	Neg.
39	7	13	Fall — 9	2.9	22	Neg.	Rise — 11	240
							Fall — 16	3
40	6	32	Fall — 11	16	50	80	None	..
41	3	50	None	..	..	120	None	..
42	13	33	None	..	..	120	None	..
43	7	160	Fall — 13	85	53	Neg.	Rise — 13	600
							Fall — 18	200
44	6	13	Fall — 13	3.7	28	3	Rise — 13	40
							Fall — 18	Neg.

* Noted in days after inoculation with *Plasmodium malariae*

to, the last paroxysm. Kahn tests were done on all of these individuals. Nine exhibited a significant rise in titer, followed in 7 instances by a subsequent fall. The 2 patients in whom a subsequent fall in Kahn units failed to occur were the same individuals who had exhibited no fall in complement-fixation titer.

Thus, of 33 syphilitic patients treated with quartan malaria, 30 exhibited a progressive fall in the complement-fixation titer for syphilis during the induced malarial infection. Of 16 of the 33 on whom quantitative Kahn tests were performed, 14 exhibited an increase in Kahn units, 1 a decrease, and 1 showed no change at all. In 12 of the 14 who showed an increase in Kahn units a subsequent fall occurred before or just after the last malarial paroxysm.

Among the 11 patients with central nervous system syphilis who were treated with *P. vivax* infection (Table 3), 6 showed a progressive fall in complement-fixation to less than 60 per cent of the initial level, and 2 exhibited no significant changes. Three individuals showed a rise in titer although in 1 case this was preceded by a preliminary fall. Flocculation tests were done in 10 of these individuals. An increase in Kahn units was noted in 7 patients, in 4 of whom a subsequent fall occurred. No changes appeared in 3 individuals, 2 of whom had likewise shown no change in complement-fixation titer.

Graphic illustrations of the serologic changes during therapeutic malaria in 4 patients selected from the above groups, together with accompanying descriptive legends, are presented in Figures 1, 2, 3, and 4.

In the control observation group, of 50 patients treated with fever induced by intravenous typhoid vaccine combined with intensive arsenotherapy, only 14 exhibited a fall in complement-fixation titer to 60 per cent or less of the initial level. Seven patients showing a drop in titer were among the 25 with central nervous system syphilis and the remaining 7 were of the 25 with latent syphilis. Of 25 patients with latent syphilis who received only intensive mapharsen therapy by the intravenous drip technic, only 2 exhibited a significant drop in complement-fixation titer during the period of therapy. Increases in complement-fixation titer were noted in only 10 per cent and 8 per cent of these two control groups respectively.

In Table 4 is presented a summary of the serologic changes in the several treatment groups. No differentiation between the patients with latent and central nervous system syphilis is made because of the similarities in the serologic changes as noted above.

The 6 patients in the *P. malariae* group who had been vaccinated with *E. typhosa* antigen a few weeks prior to inoculation showed no significant variation in *E. typhosa* agglutination

TABLE 4

Summary of Major Serologic Trends in Syphilitic Individuals during Various Methods of Therapy

	New York State Complement-fixation Titer					*Kahn Flocculation Units*				
		Fall in Titer		*Rise in Titer*			*Fall in Titer*		*Rise in Titer*	
Method of Therapy	*Patients Tested*	*No.*	*Per cent*	*No.*	*Per cent*	*Patients Tested*	*No.*	*Per cent*	*No.*	*Per cent*
P. malariae infection	33	30	91	0	0	16	1	6	14	88
P. vivax infection	11	6	55	3	27	10	0	0	7	70
Typhoid vaccine fever with intensive arsenotherapy	50	14	28	5	10					
Intensive mapharsen drip therapy	25	2	8	2	8					

FIGURE 1—Serologic changes during induced *Plasmodium malariae* infection in a 46 year old Negro male with central nervous system syphilis, illustrating fall in complement-fixation and Kahn flocculation titers

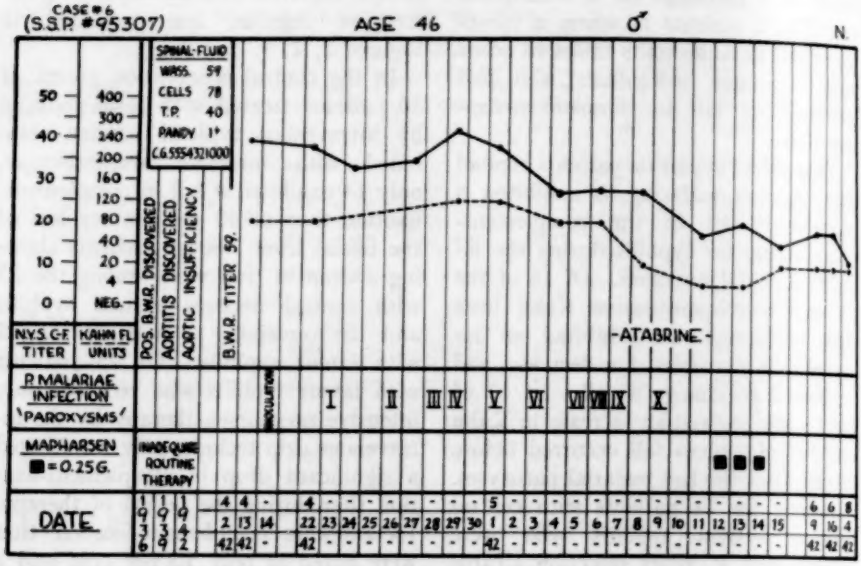


FIGURE 2—Serologic changes during *Plasmodium malariae* infection in a 33 year old white male with central nervous system syphilis, illustrating fall in complement-fixation titer and rise and fall in Kahn flocculation titer

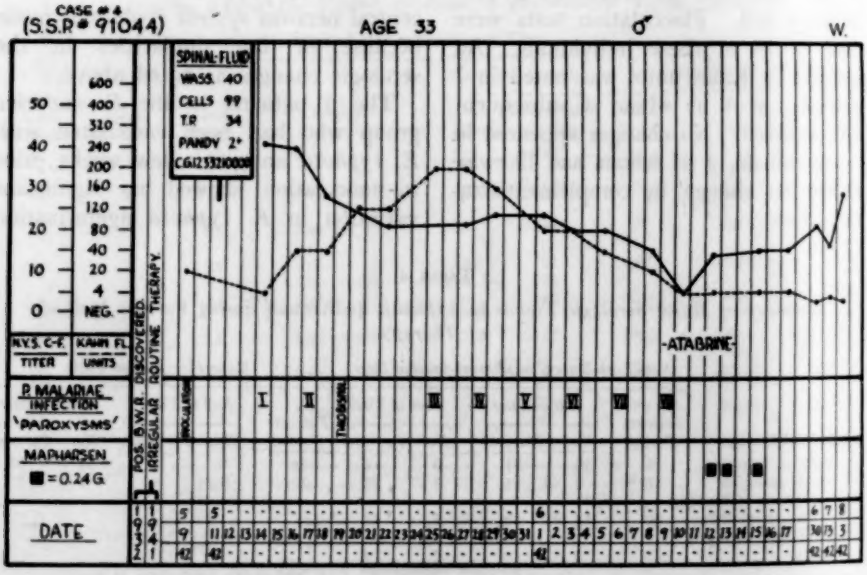


FIGURE 3—Serologic changes during *Plasmodium vivax* infection in a 46 year old white male with central nervous system syphilis, illustrating fall in complement-fixation titer and rise in Kahn flocculation titer

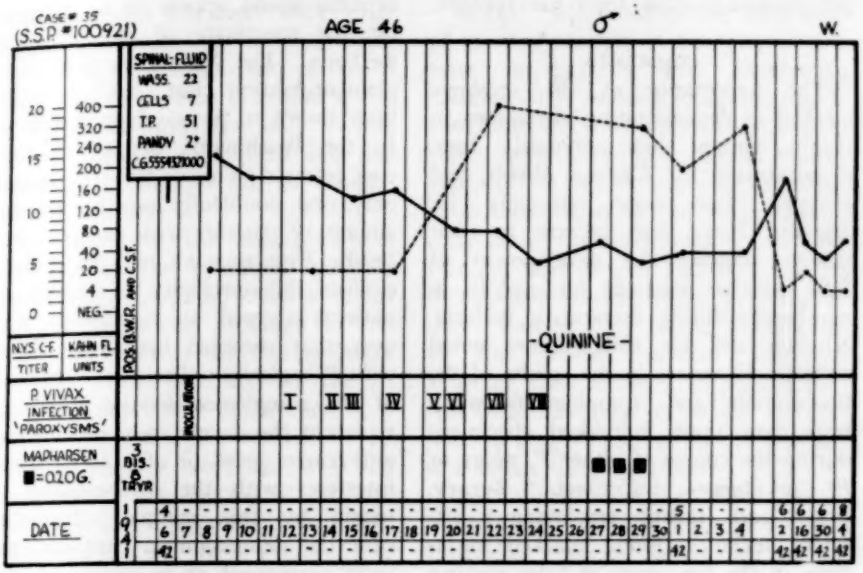
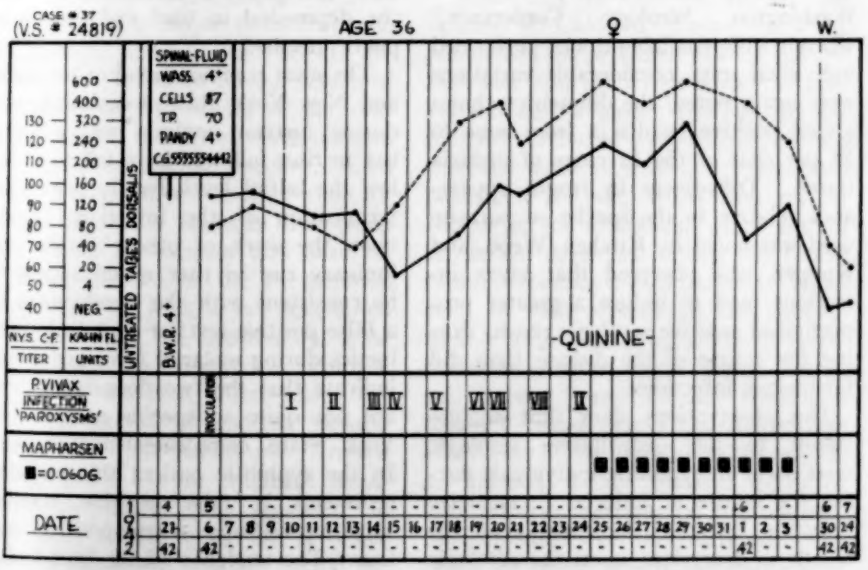


FIGURE 4—Serologic changes during induced Plasmodium *vivax* infection in a 36 year old white female with central nervous system syphilis, illustrating rise in complement-fixation and Kahn flocculation titers after preliminary fall in former, and subsequent fall in both soon after termination of infection



titer during the course of the malarial infection although 5 of the 6 showed considerable falls in the titer of the complement-fixation tests for syphilis.

COMMENTS

The importance of the serologic method in demonstrating alterations in reagin content has previously been demonstrated by Kitchen, Webb, and Kupper, and more strikingly by Burney, Mays, and Iskrant in their studies showing the development of false positive reactions for syphilis in non-luetics during therapeutic malaria. Kitchen and his collaborators noted definite differences in the results of the flocculation and complement-fixation tests done upon individual specimens during the course of either *P. vivax* or *P. falciparum* infections. Burney, Mays, and Iskrant, employing 9 different technics, found marked variations in the frequency of false positive reactions for syphilis during the course of vivax infections, some tests exhibiting few or no positive reactions whereas others showed positive reactions among each of the 11 individuals studied. In the recently published report of the Washington Serology Conference,[9] wherein different laboratories performed individual tests, considerable variations were again noted, the different technics giving positive results in from none to 75 per cent of the 12 cases of malaria tested. Differences in reagin appearance relative to the species of parasite used was noted by Kitchen, Webb, and Kupper, who observed that vivax infections tend to induce a greater proportion of positive serologic results during the course of the disease than did falciparum infections.

Our observations show that definite trends in the quantitative serologic tests occur in syphilitic individuals during the course of induced *P. malariae* infection, but that the direction of the trends is dependent upon the serologic test employed. The different curves presented by the quantitative complement-fixation and flocculation tests for syphilis would appear to be governed by the specificity of the individual methods. The New York State complement-fixation test has previously been shown to possess high specificity. In the Washington Serology Conference referred to above this test revealed only one doubtfully positive reaction among 12 patients with malaria. Our results with quartan malaria seem to confirm this specificity as none of our patients showed an increase in titer over that recorded before inoculation with *P. malariae*. The downward trend of the complement-fixation titer may represent the development of an actual anti-reagin agent or of a factor which interferes with the demonstration of reagin by this method. In either case the depression in titer does not seem permanent as in several patients who have been followed sufficiently long the titer tends to approach its original level after a few months. No patients have been followed long enough to warrant any conclusion regarding a possible relationship between the depression in titer and the therapeutic results.

The most common trend of the Kahn and New York State flocculation tests during quartan malaria was a sharp rise in titer followed by a fall to or below the initial level usually before the termination of the infection. Based upon the work of others[1, 2] the preliminary rise in titer would appear to be consistent with the development of a false positive test for syphilis in non-luetics during malarial fever and would indicate that the two flocculation tests are not quite so specific as the New York State complement-fixation test. In the syphilitic patient this probably represents a false positive reaction superimposed upon a true positive reaction. The tendency of the titer to fall

during the course of the infection differs from the trend noted among non-luetics in whom the newly acquired positivity often persists for 1 or more weeks after the last paroxysm. It is interesting and possibly significant that, of the 14 syphilitic patients who exhibited a rise in flocculation titer, the only 2 who failed to show a subsequent fall had also failed to show a fall in complement-fixation titer.

The trends of the serologic tests noted among the syphilitic patients treated with *P. vivax* infection were not nearly so consistent, although in the majority of patients the findings were similar to those exhibited by the *P. malariae* group. The occurrence of a rise in complement-fixation titer in 3 of the 11 patients seems to stress the importance of the species of parasite upon the serologic response, as Kitchen, Webb, and Kupper have noted (vide supra).

Ellingson and Clark [10] have recently reported experiments demonstrating a rapid reduction in *E. typhosa* antibody titers in typhoid vaccinated rabbits following the induction of severe fever by physical methods. However, fever as a major influence upon the serologic titers in our patients appears to be eliminated by the results of the control groups. Only 28 per cent of the patients treated by fever induced by intravenous typhoid vaccine showed a fall in complement-fixation titer although the febrile bouts in this group were similar in intensity and duration to those observed in the *P. malariae* group in which such a fall was noted in 91 per cent. In addition, at least one instance was observed in which a fall in titer was first noted during the incubation period of quartan malaria prior to the first paroxysm. Arsenotherapy given by the intensive intravenous mapharsen drip appeared to have little effect upon the serologic titers, as significant changes during the course of treatment occurred very infrequently in patients receiving this type of therapy alone.

Kopp [11] has reported the occurrence of marked changes in the plasma proteins in patients with therapeutic malaria. His patients exhibited significant depressions in albumen and usually slight elevations in globulin and fibrinogen, with all factors returning to normal upon termination of the infection. In some cases, the changes were noted before the onset of fever. Fever produced by typhoid vaccine or by the inductotherm caused only slight fluctuations in the plasma protein fractions. Whether these changes in plasma protein bear any relation to the fluctuations in reagin observed in our patients is a matter of speculation.

Our studies on the effect of *P. malariae* infection on induced typhoid antibodies revealed no change in the agglutination titer for *E. typhosa* during the malarial infection, indicating that the effects of this therapeutic method upon the tests for syphilis do not universally extend to other types of serologic reactions.

Interesting in this regard are the studies of Caldwell [12] who, in 1930, noted that the serum of general paralytics who had been treated by induced malaria had a higher titer of agglutinins for cultivated *Treponema pallidum* than the serum of similar but untreated patients. He also noted that an increase in spirocheticidal properties of the serum developed during the course of induced malaria in 6 patients. However, in their studies on the complement-fixation test using cultured spirochetes as antigen, Eagle, Mays, Hogan, and Burney [13] and Kolmer, Kast, and Lynch [14] found that a high percentage of non-syphilitic persons with natural or induced tertian malaria exhibited false positive reactions by this method. Further studies on the relationship between syphilitic reagin and spirochetal

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Interesting in this regard are the studies of Caldwell [12] who, in 1930, noted that the serum of general paralytics who had been treated by induced malaria had a higher titer of agglutinins for cultivated *Treponema pallidum* than the serum of similar but untreated patients. He also noted that an increase in spirocheticidal properties of the serum developed during the course of induced malaria in 6 patients. However, in their studies on the complement-fixation test using cultured spirochetes as antigen, Eagle, Mays, Hogan, and Burney [13] and Kolmer, Kast, and Lynch [14] found that a high percentage of non-syphilitic persons with natural or induced tertian malaria exhibited false positive reactions by this method. Further studies on the relationship between syphilitic reagin and spirochetal

antibodies are necessary before any correlation can be made between Caldwell's findings and our own.

Recently Dulaney, Stratman-Thomas, and Warr [15] have described the development of high complement-fixation titers for malaria in syphilitic individuals treated with induced infection. Because of the importance of exact details concerned in any one serologic test in influencing the resulting titers it is not possible to compare the results of any procedures not done in identical manner. However, it is interesting that the specific or malaria complement-fixing antibody should be shown to increase while the reagin indicated by the New York State complement-fixation tests decreased.

SUMMARY

1. Changes in quantitative serologic tests in syphilitic individuals during the course of therapeutic malaria depend upon the type of test employed and the species of parasite used.

2. During infection induced by inoculation with *Plasmodium malariae* there was a uniform fall in the New York State complement-fixation titer and a preliminary rise and subsequent fall in the Kahn and New York State precipitation titers. During infection induced by inoculation with *Plasmodium vivax* the serologic changes were most often similar but were not so constant.

3. Fever alone did not seem to be a major factor in the production of the serologic changes.

4. No conclusions are warranted regarding any relationship between the changes in serologic titers and potential therapeutic results.

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Effect of the Activated Sludge Process of Sewage Treatment on Poliomyelitis Virus*

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THE demonstration by several investigators [1-7] of poliomyelitis virus in the stools of patients and healthy carriers and in sewage leads to a question of the ultimate fate of the virus in its passage through modern water and sewage treatment processes. The question is of more than ordinary interest in view of the thesis [8-11] that the transmission of the disease may be through the gastrointestinal tract. This suggestion would throw suspicion upon water supplies as possible hazards in the spread of the disease. Protection against such a potentiality would depend upon the ability of water purification and sewage treatment processes to remove or to destroy the virus.

The first of a series of studies on the effect of water and sewage treatment on the virus was recently presented [12] in the form of a preliminary report of the efficacy of individual water purification units. The present communication is a report of the effect on the virus of the activated sludge process of sewage treatment.

METHODS

General—A strain of poliomyelitis virus adapted for mice was used throughout the experiments. The virus suspension employed in the experiments was prepared from cords and brains of mice killed in the acute stage of the disease and showing paralysis in two or more extremities. These tissues were ground in refined silica and suspended in buffered broth, 1:5. The supernatant from this concentrate was then made up with activated sludge to a dilution of 1:300. Such a heavy inoculum was used in order to ascertain the effect of activated sludge under severe loading with the virus. Furthermore, it was deemed desirable to use quantities of virus that could be readily detected.

The method of investigation consisted of observing the effect on the virus of the activated sludge process under conditions designed to simulate operating conditions usually encountered in this type of sewage disposal practice.

The activated sludge used in the experiments was obtained from the Ann Arbor Sewage Treatment Plant and showed the following chemical and biochemical characteristics:

* This study was aided by a grant from the National Foundation for Infantile Paralysis, Inc.

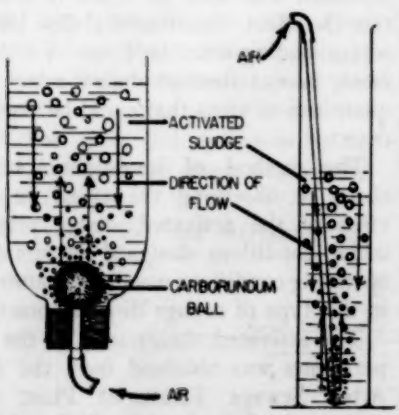
Ash—16%
pH of mixed liquor—6.8
Biochemical oxidizing power—90% removal of 5 day B.O.D. in 6 hours
Suspended solids removal—95%
Nitrate—nitrogen produced—15 p.p.m.

Before introducing the virus suspension, the activated sludge was aerated in the laboratory for 24 hours.

The activated sludge, inoculated with virus suspension, consisting of one part concentrated virus suspension to 300 parts mixed activated sludge liquor, was aerated for periods up to 9 hours. Samples were taken from the aeration units at 2 minutes, 3 hours, 6 hours, and 9 hours to represent different detention periods. These samples were allowed to settle and were then centrifuged and portions of the supernatant liquor were inoculated intracerebrally into mice. Concentrations of activated sludge in amounts of 1,100, 2,200 and 3,300 p.p.m. were studied separately in the above described manner.

Aeration Units—The aeration units used in the experiments are shown in the diagrammatic sketches in Figure 1. The unit appearing in the left of the figure was used in several of the early studies and in the check runs of the investigation. The air entered through the base of the unit into a carborundum ball which dispersed the air throughout the mixture. The degree of dispersion was sufficient to keep the mixture agitated so that all portions were thoroughly aerated. In the second unit the air was introduced through a tapered glass tube placed at the bottom of a liter glass cylinder. The end of the glass tube was narrowed to a small orifice allowing only a fine stream of air to emerge. This method proved to be very efficient both in aeration and in mixing of the sludge.

FIGURE 1.



ACTIVATED SLUDGE - AERATION UNITS

Both units were operated at a rate sufficient to maintain aerobic conditions in the mixture.

The amount of settleable solids were varied to approximate different conditions. The various concentrations of activated solids used were obtained by concentrating two to three times the material obtained from the municipal sewage disposal plant. Control measurements of the activated sludge included repeated determinations of suspended solids, total ash, pH, titrable acidity or alkalinity, ammonia-nitrogen and nitrate-nitrogen.

Sampling—In collecting the samples at consecutive aeration intervals, portions of the supernatant were removed aseptically by suction. The samples were then centrifuged to remove the coarser particles that were impossible to eliminate by the method used in collecting the supernatant liquor. Comparisons were made between centrifuged specimens and gravity-settled specimens; the final results were supernatant liquors of comparable quality. Centrifugation, however, speeded this phase of the work.

Bactericidal treatment—In order to obtain an effluent free from bacteria that might cause complications and death in the animals, the supernatant

liquor was treated with chlorine. The addition of chlorine in sufficient concentrations to destroy interfering bacteria was demonstrated not to affect the virus. The bactericidal process consisted of treating the samples to be used for inoculation with chlorine in such quantity that 0.5 p.p.m. residual chlorine was present at the end of 10 minutes' contact time. Residual chlorine was determined by the starch iodide method. All control and activated sludge samples were treated in the same manner.

RESULTS

Paralysis in one or more mice in any test group was deemed to be indicative that the virus was not removed or destroyed by the activated sludge in which it was suspended. Animals dying 1 to 3 days after inoculation were considered to have died from trauma or interfering toxic substances. Those dying without showing paralysis after the first animal in any group had become paralyzed were considered to have died probably from the virus infection, with respiratory paralysis causing the death before paralysis was observed in the extremities. However, in the statistical interpretation of the results, nonparalyzed animals were counted as having succumbed to the virus only if the presence of the virus in each animal so dying could be checked by subsequent passage.

The possibility of the presence of an extraneous virus of neurotropic type in the activated sludge itself had to be considered. This possibility was controlled in all the experiments through inoculation of samples of the supernatant from the activated sludge intracerebrally into test groups of animals. At no time throughout the experiment were results obtained indicative of the presence of such a virus.

The results of the study are shown in Table 1. Four hundred and twenty mice were used in the final experiments with a total of 1,150 animals used altogether including preliminary studies and various check runs. In Table 1 are shown the results in the control animals and in animals receiving virus suspension subjected to action of three different activated sludge concentrations for three periods of aeration. Three types of control were used. Two of the control series (Nos. 1 and 2 in Table 1) consisted of animals that received the original 1:5 brain cord virus suspension and the 1:300 suspension, the latter equivalent to the dilution used in the activated sludge tests. These dilutions were injected into mice to determine the potency of the virus used. The third control (No. 3) consisted of a group of animals that received the 1:300 suspension of virus subjected to aeration but without addition of activated sludge. This control served to indicate the effect of aeration alone in the absence of any effect of the sludge. Nos. 4, 5, and 6 in the table represent the effect of three different concentrations of activated sludge for different aeration periods.

In the six groups of 30 animals each that received virus-sludge mixture without aeration, 84 were paralyzed, 39 died without showing paralysis, and 58 remained alive of the total of 180 animals. Twenty-one of the 39 deaths were deemed to be due to trauma since the animals died within the first 3 days after inoculation.

It is to be noted that in the material subjected to aeration for 6 hours, paralysis occurred only in the control group of mice that received material subjected to aeration but containing no activated sludge. Although a few animals died that received virus-sludge mixture after aeration, the numbers are small and the preponderance of survivals is very great. The results are even more striking in the group of 120 mice that received material aerated for 9 hours. Here again paralysis occurred only in those animals that received virus

TABLE 1

No.	Suspended Solids p.p.m.	No. Mice	Hours: 0 Hours P	0 Hours D	0 Hours Dis	6 Hours P	6 Hours D	6 Hours Dis	9 Hours P	9 Hours D	9 Hours Dis	Material Used for Inoculation
1	0	30	24	6	—	..	..	..	..	..	..	Virus control 1–5 nonaerated
2	0	30	18	4	8	..	..	..	..	..	..	Virus control 1–300 nonaerated
3	0	90	14	6	10	11	10	9	7	3	20	Virus control 1–300 aerated
4	1,100	90	8	12	10	0	6	24	0	1	29	Virus 1–300 — Activated sludge plus aeration
5	2,200	90	13	5	12	0	3	27	0	1	29	Virus 1–300 — Activated sludge plus aeration
6	3,300	90	7	6	17	0	1	29	0	1	29	Virus 1–300 — Activated sludge plus aeration

P = Animals paralyzed
D = Animals dying without developing paralysis
Dis = Animals remaining alive

suspension subjected to aeration in the absence of activated sludge. Of the 90 animals receiving virus-sludge mixture subjected to 9 hours' aeration, none became paralyzed and only 3 died in the course of the experiment.

DISCUSSION

Although the difficulties encountered in rendering activated sludge mixtures nontoxic for animals may account for the death of some animals, the study of the results of these experiments indicate that activated sludge in concentrations as low as 1,100 p.p.m. has largely removed the virus (as tested for in the supernatant liquor) in a 6 hour aeration period, and that the sludge in amounts of 1,100, 2,200, and 3,300 p.p.m. at 6 and 9 hours' aeration periods removed the virus sufficiently from the liquor to make it almost completely noninfective when injected intracerebrally into mice.

The sludge without prolonged aeration appeared to have no great affinity for prompt adsorption of the virus. In the series of animals tested, 14 mice of the control group of 30 animals were paralyzed against 8, 13, and 7 respectively in the similar groups that received virus after exposure to the three concentrations of sludge. The effect of aeration without the presence of activated sludge is shown in Line 3 of Table 1. Virus removal or inactivation may have been effected to some degree by prolonged aeration since the number of mice paralyzed decreased from 14 in the group of 30 receiving nonaerated virus suspension to 7 in the group that received virus suspension aerated for 9 hours. Aeration of the virus suspension in dilution of 1:300 caused some precipitation of the protein material so that after the 6 and 9 hour periods there appeared an accumulation of shreds (brain and cord protein) floating on the surface or adhering to walls of the aeration units. This may have been responsible for removal of some of the virus.

The mechanism of removal or destruction of poliomyelitis virus in the activated sludge process of sewage treatment is not clear. Further experiments are needed to determine what proportion of the action of the sludge on virus may be due to adsorption in a mechanical fashion, to partial precipitation by aeration, or to virucidal, oxidative, or enzymatic activity of the sludge.

SUMMARY

Investigations have been made of the effect of the activated sludge process as used in municipal sewage disposal

plants on the removal or inactivation of a mouse adapted strain of poliomyelitis virus. Virus suspension 1:300 was used in sludge concentrations of 1,100, 2,200, and 3,300 p.p.m. with aeration periods of zero, 6 and 9 hours.

The results indicate that activated sludge in amounts as low as 1,100 p.p.m. with 6 hours' aeration will remove or inactivate the virus to a sufficient extent to reduce greatly infectivity for mice injected intracerebrally. Heavier concentrations of sludge with longer aeration periods largely eliminate infectivity.

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Tuberculosis Survey among the Employees of Santiago, Chile*

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THROUGH the efforts of the then Minister of Social Welfare, Dr. E. Cruz Coke, the Preventive Medicine Law was passed in 1938.

This is an official compulsory health insurance for private employees. It covers a middle class group made up of employees in commerce and the professions whose duties are chiefly intellectual and who receive their remuneration from private capital but are not covered by Labourers Insurance.

The operation of the Law is made possible by a 2 per cent tax on salaries, shared equally by employee and employer. The law provides for the annual physical examination of employees and free treatment for those who are found to have tuberculosis, syphilis, or circulatory disease in a curable form.

Offices and a special medical staff have been provided for carrying on examinations and treatment. The staff includes a group of internists, who take the history and make the general physical examination of the employee; a laboratory group; x-ray group; and specialists in tuberculosis, syphilis, and circulatory diseases. The employee has a routine history, physical examination, Wassermann and Kahn blood tests, and fluoroscopic examination of the chest. If he shows signs of tuberculosis, syphilis, or a circulatory disease, he is transferred to the specialist for a more complete examination. A special effort is made to detect tuberculosis and, although fluoroscopy is used, there is no hesitancy in having a roentgenogram if there is any suspicion of a lesion. In fact, of all employees examined 30 per cent had chest plates taken.

In the first two and a half years of the Law's operation in Santiago, 68,854 persons were enrolled and insured. Of these, 25,556 were given a physical examination. Ages ranged from 16 to 65 years, and 75 per cent were men. Of the 25,566, 899, or 3.51 per cent, were found to have lesions of active tuberculosis, and 1,113, or 4.35 per cent, had signs of residual tuberculosis.

In Table 1 the group of employees examined is distributed according to age and sex and the number and percentage of those with active lesions is shown. The curve reaches its peak in the age group 20-29 and then descends rapidly through the upper age groups. If we compare this curve with our general tuberculosis mortality curve by ages, we see that their peaks coincide at the same age, but while the morbidity curve decreases rapidly, the mortality curve drops more slowly and, in fact, remains almost at the same level. We think that tuberculosis mortality after the age of 40 is due in great part to chronic tuberculosis incompatible

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TABLE 1

Employees Examined by Age, Sex and Active Tuberculosis

Age	Examined			Tuberculous			Percentages		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
16-20	966	503	1,469	43	17	60	4.45	3.41	4.08
20-29	7,075	3,638	10,713	316	198	314	4.47	5.45	4.79
30-39	5,854	1,768	7,622	151	59	220	2.75	3.32	2.89
40-49	3,238	475	3,713	68	11	79	2.11	2.32	2.13
50 and over	1,913	136	2,049	16	0	16	0.84	0.0	0.78
Total	19,046	6,520	25,566	604	285	889	3.17	4.37	3.51

with an active life. Those individuals whom we examined were active workers with perhaps less chronic tuberculosis than the general population; hence, the apparent discrepancy between our curves of morbidity and mortality.

In contradistinction to our findings the tuberculosis mortality rate curve of white North Americans ascends progressively with age. Manuel Abreu found the same condition in the survey which he made of employees in Brazil in which the proportion with active tuberculosis lesions increased with age.

This difference between the Chilean curves of mortality and morbidity and those of other countries may indicate that we are passing through an epidemiological phase of maximum infection in which the disease has not yet shown a tendency to decrease spontaneously.

With regard to sex there is noted a higher morbidity among females during the reproductive period. Probably the phenomena of the sexual life of the woman, such as menstruation and pregnancy bring about modifications in the defense mechanisms against infection.

TABLE 2

Percentage of 889 Cases in Each Economic Group

U.C.D. (pesos)	Per cent of Active Cases	Per cent of Employees of Santiago
Less than 4.10	16.1	17.3
4.10-10.40	41.3	59.5
10.50-20.80	32.0	15.6
20.80 and over	10.6	8.6
Total	100.0	100.0

U.C.D. = Average daily salary per household member
One Chilean peso is equal to $0.03

The economic situation of this group can only be studied indirectly, that is, by grouping all private employees of Santiago according to daily wage, and then comparing the percentages of the 899 cases in each of these income divisions. This is shown in Table 2.

U. C. D. is the amount of money received per person per day. It is obtained by dividing the monthly income by 30, and that amount in turn by the number of individuals in the family.

If the income has a definite influence on morbidity rates we should expect to find these rates higher among the lower income groups. This, however, is not the case and, as we note in the above Table 2, there is a higher proportion of cases among those receiving more income per capita. Forty-three per cent of the cases were in the higher income group which made up only 23 per cent of the group studied.

Since these observations contradict our belief that the incidence of tuberculosis is influenced by the economic factor, it is necessary to make a more detailed study of a larger group of people than those included in this particular work. In order to obtain a more complete picture in Table 3 we have divided the provinces of Chile into groups according to the average salaries paid during the year 1939. In these

TABLE 3

Provinces of Chile according to Average Salary Paid

Weekly Salary (Dollars)	*Provinces*	*Average Mortality Rate from Tuberculosis (1937–1938)*	*Average Infant Mortality Rate (1937–1938)*
More than $3.00	Magallanes, Coquimbo, Atacama, O'Higgins	253.5	188.5
From $2.28 to $2.97	Antofagasta, Tarapaca, Santiago, Valparaiso, Malleco, Aysen	271.4	206.6
From $1.86 to $2.25	Cautin, Colchagua, Aconcagua, Maule, Concepcion, Arauco, Bio-bio, y Curico	197.0	261.6
Less than $1.86	Linares, Valdivia, Talca, Ñuble, Llanquihue, y Chiloe	190.0	271.8

groups of provinces we have obtained the tuberculosis mortality rates. Infant mortality rates, since they are our best statistical indication of economic status, have also been included. The highest infant mortality rates are in those provinces with the lowest income. The tuberculosis mortality rates, however, as in the previous table, are higher in those provinces where economic conditions are better.

It is interesting to note that Abreu in a similar study of municipal employees in Brazil found the same condition as in Chile with a higher percentage of active cases among the upper income groups. This is illustrated in Table 4.

TABLE 4

Tuberculosis among Municipal Employees in Brazil Classified according to Salary
(From Dr. Manoel de Abreu)

Monthly Salary (dollars)	*Per cent of Active Tuberculosis*
$17.75	2.38
$31.50	3.00
$45.00	2.07
$60.00	4.82
$60.20 and over	3.28

From these observations we are inclined to conclude that tuberculosis morbidity is not influenced by financial income in Chile. Probably the idea that tuberculosis is an economic disease is due to the fact that the prognosis varies directly with the economic status of the patient.

TABLE 5

Per cent of Healed Classified by Salary

U.C.D. (pesos)	*Per cent of Healed*
Less than 4.10	52.4
4.10 to 10.40	66.5
10.50 to 20.80	68.2
20.90 and over	76.2

In order to determine the relationship of economic status and response to treatment, we have divided the persons treated into two groups, those who showed a favorable response, and those who showed no improvement. Table 5 gives the percentage of favorable responses to treatment in each of the various income per person per day groups, and illustrates clearly the higher number of cures among the upper income patients.

From these observations we are inclined to think that many individuals of good economic status having tuberculosis lesions without symptoms are cured spontaneously while many of those whose standard of living is lower become progressively worse. (Logically in this survey in which the majority of the lesions discovered are producing no

symptoms, the percentage of active lesions does not vary with the economic status of the groups examined.)

Unfortunately, the Preventive Medicine Law does not provide for the examination of family contacts, and for this reason it is impossible for us to investigate the relationship of economic status to communicability. It is only possible for us to group the individuals studied according to diagnosis and then compare these groups with reference to history of contact.

In Table 6 we have considered the individuals to have a history of contact if in their families there was an active case of tuberculosis under the care of a physician or a death from tuberculosis in recent years. This analysis demonstrates the importance of the contact factor in the spread of the disease. Attention is called to the fact that 16.7 per cent of those found with active lesions gave a positive history of contact, while only 0.9 per cent of those with no lesions gave such a history. This figure is similar to that obtained by us in the study of a small group of families of patients hospitalized for tuberculosis, in which we found 23 per cent of family contacts with active asymptomatic lesions. Professor Sayé in a recent investigation in Chile found that 22 per cent of individuals in familial contact with open cases of tuberculosis showed active lesions. (This high figure demonstrates the importance of carrying antituberculosis activities to the family of the patient.)

TABLE 6

History of Exposure to Open Cases

Diagnosis	*Persons Examined*	*Per cent with Contact History*
Healthy	20,351	0.9
Residual Tuberculosis	1,316	9.1
Active Tuberculosis (Minimal and Moderately Advanced)	645	16.3
Far Advanced Tuberculosis	36	25.7

Residual tuberculosis is lesions without clinical significance and so these persons were not included among the tuberculous cases in Table 1.

The difference in the number of persons examined between Table 1 and Table 6 can be explained because we could not find any reference about exposure in 208 of the patients and in 3,000 of those classified as healthy, residual or not.

From Table 6 it is easy to see how much more important is the contact factor than the economic factor in the prevalence of tuberculosis in Chile. Unfortunately, tuberculosis has been looked upon as an economic disease, and for this reason the problem has been taken up by politicians and has been attacked chiefly by the economist rather than the epidemiologist.

Of the 889 individuals diagnosed as having active tuberculosis it is possible at this time to present figures on 461 closed cases. Of these 461, the first diagnosis was minimal lesion 178, moderately advanced 196, and far advanced 87. In Table 7, these are classified according to their condition at the time of discharge. The more advanced

TABLE 7

Stage at Time of Discharge Classified according to First Diagnosis

	First Diagnosis		
Status at Discharge	*Minimal*	*Moderately Advanced*	*Far Advanced*
Cured	162	122	4
Improved	11	30	11
Unchanged	2	23	45
Worse	3	21	27
Total	178	196	87

Deaths are not included because those who become worse or are unchanged after a reasonable period of time are discharged, and the Service does not know anything more about them.

The people classified as improved are those considered cured but without the gastric lavage which can prove it.

the disease at the time of discovery, the less favorable was the outcome.

In Table 8 this group of patients is classified according to progress of infection in relation to age. Although it appears that the percentage of cured or improved is higher among the lower age groups, the numbers in the upper ages are too small for comparison.

If we classify those who were discharged as cured we find that the average period of treatment for those with minimal lesions was 12.6 months, whereas those with moderately advanced lesions were treated 17.1 months, and those with advanced lesions 19.5 months.

This study gives us a clear idea of

TABLE 8

Stage at Discharged Classified by Age

Age	*Cured*	*Per cent*	*Improved*	*Per cent*	*Unchanged*	*Per cent*	*Worse*	*Per cent*
Less 20	22	64.7	5	14.7	3	8.8	4	11.7
20–29	183	67.0	31	11.3	29	10.6	30	11.0
30–39	62	59.6	12	11.5	21	20.2	9	8.6
40–49	20	50.0	2	5.0	14	35.0	4	10.0
50 and over	2	20.0	0	....	5	50.0	3	30.0
Total	289		50		72		50	

In studying the care received we find that 81 per cent of those treated in a sanatorium showed improvement, as against 70 per cent of those treated at home. The difference is probably significant as sanatorium cases were selected from those with a less favorable prognosis. There is no difference between the percentages of men and women who showed improvement under treatment.

the economy in cost of treatment obtained by discovering cases in the early stages of the disease.

This report is only in the nature of a preliminary communication. It is an attempt to pause for a moment and take stock of what is being done with the hope that we may correct errors and direct our steps toward bringing about the best possible results.

Public Health and Economic Aspects of Pneumonia—A Comparison with Pre-sulfonamide Years

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THE spectacular results which have attended the use of sulfonamide drugs in pneumonia have simplified therapy of a disease, which until a few years ago called for the exercise of all the therapeutic resources and ingenuity at the physician's command. Inevitably, this has led to an attitude of almost casual optimism. While the prognosis in the individual case has improved tremendously, the present study, undertaken to determine what influence the newer therapy has had on public health and economic aspects of pneumonia, emphasizes that pneumonia remains a major problem in public health.

Valid morbidity data are notoriously difficult to obtain. Analysis of pneumonia experience among the personnel of several large industrial organizations carrying group health and life insurance with the Equitable Life Assurance Society of the United States, appeared to provide a satisfactory method whereby the prevalence of pneumonia and certain other aspects could be studied. The groups reviewed comprised a large number of diversified industries throughout the United States, totalling over 100,000 employees of average industrial age distribution (Table 1). The findings, therefore, may be considered representative of the entire industrial population, rather than reflecting the particular trend in any one industry, age group, or locality. All cases of pneumonia were included in the analysis excepting those where pneumonia occurred terminally or as a complication of another disabling illness. The recent report on "A Nationwide Study of the Bacterial Etiology of the Pneumonias"[1] indicates that pneumococci are responsible for more than three-fourths of all pneumonias.

TABLE 1

(a) *Age Distribution of Employed Persons*

Age Group	*Equitable Life Study* Per cent	*U. S. Census Study 1940 December 14, 1942* Per cent
14–19	3	6
20–24	12	12
25–34	36	26
35–44	26	22
45–54	15	19
55–64	6	11
Over 64	2	4
	100	100

(b) *Type of Industries Covered in Equitable Life Study*

Street Railway and Bus Transportation
Coal Mining
Baking and Confectionery
Chemical Manufacturing (Explosives, Paints, Fertilizers, Soaps)
Manufacturing of Textiles, Rubber Tires and Tubes and Automobile Parts
Cigarettes, Cigars and Smoking Tobacco
Department Store

In order to ascertain what influence the advent of sulfonamide therapy has exerted on the prevalence, mortality,

and duration of illness in pneumonia, the years 1935 to 1937 inclusive were compared with the period from January 1, 1939, to June 1, 1942. The year 1938 was not included since this was a transition period when sulfonamide therapy was being introduced in the treatment of pneumonia. The average exposure in the first period was 100,364 lives, and in the second period 123,962 lives.

INCIDENCE

The frequency of pneumonia by quarters and years is indicated in Table 2. The incidence of pneumonia, as revealed in studies conducted by The U. S. Public Health Service,[2] is shown for comparison. The public health data are comparable to our findings, being based similarly on pneumonia experience among large industrial groups throughout the United States. The findings in both studies are graphically summarized in Figures 1 and 2.

It is observed that the incidence rates and trends in both series check quite closely. The over-all average shows an incidence rate of 2.6 per 1,000 in the first period (pre-sulfonamide), compared with 3.0 per 1,000 in the second period. The public health data show an incidence rate of 2.6 per 1,000 in the first period, and in the second period a somewhat greater increase to 3.4 per 1,000.

An increase in the incidence of pneumonia since 1939 is evident in both series and is much more striking in the public health survey. The greater increase in the public health survey, however, may be apparent rather than real for the public health study includes only pneumonia cases of over 8 days' duration, so that no cases with a fatal

TABLE 2

Pneumonia Incidence per 1,000

Period	*Equitable Life Assurance Society of the U. S.*				*Public Health Reports Study of Disabling Morbidity among Industrial Workers*	
	Lives Exposed	*Pneumonia Incidence*	*Quarterly Rate*	*Annual Rate*	*Quarterly Rate*	*Annual Rate*
1st Quarter 1935	91,174	85	3.73		3.8	
2nd " "	92,186	65	2.82		2.4	
3rd " "	92,451	24	1.04	2.51	1.1	2.3
4th " "	95,217	59	2.48		2.2	
1st Quarter 1936	96,199	116	4.82		4.9	
2nd " "	94,397	53	2.25		2.7	
3rd " "	98,837	34	1.37	2.78	0.9	2.6
4th " "	100,935	68	2.69		2.2	
1st Quarter 1937	105,540	108	4.09		4.5	
2nd " "	109,457	49	1.79		2.7	
3rd " "	111,962	48	1.71	2.52	1.5	2.9
4th " "	112,674	72	2.56		3.0	
1st Quarter 1939	104,011	126	4.85		4.7	
2nd " "	104,322	62	2.38		3.3	
3rd " "	105,593	27	1.02	2.65	1.1	3.1
4th " "	108,434	65	2.40		3.2	
1st Quarter 1940	109,396	152	5.56		6.1	
2nd " "	112,287	64	2.28		3.5	
3rd " "	117,817	38	1.29	3.11	1.8	3.5
4th " "	120,535	104	3.45		2.7	
1st Quarter 1941	122,223	185	6.05		5.8	
2nd " "	128,336	89	2.77		4.7	
3rd " "	143,273	48	1.34	3.18	1.9	3.7
4th " "	153,458	113	2.94		2.8	
1st Quarter 1942	161,567	187	4.63		7.2	
2nd " "	166,800	83 *	2.99		4.8	

* 2 months only

FIGURE 1

ANNUAL RATES OF PNEUMONIA INCIDENCE

CALENDAR YEARS 1920-1941 INCLUSIVE

termination within the first 8 days of illness are included. Thus, the increased number of cases since the introduction of sulfonamide treatment recorded in the public health survey is to be attributed, probably in major degree, to a greater number of cases which now survive. Previously a much greater percentage of cases terminated fatally in less than 8 days and, accordingly, were not listed in the public health survey. In the Equitable data all fatalities in both periods, including deaths within the first 8 days of illness, are included so that the comparison of incidence rates is more valid.

While the omission of fatalities in the public health data invalidates any comparison of incidence rates with pre-sulfonamide years, nevertheless, it is of interest to review the annual incidence of pneumonia prior to 1938. The public health data prior to 1938 may serve in some measure to reflect changes in incidence, even though fatal cases were not included, since the mortality rate did not vary greatly before 1938, although a slight gradual decline in the mortality rate had been manifest for some years probably due to increasing use of oxygen and serum therapy. The annual incidence rate per 1,000 as far back as 1920 and quarterly rates since 1929 have been abstracted from the periodic public health reports of disabling morbidity among industrial employees, and are presented in Table 3. It is seen that, even excluding deaths in the first 8 days of illness, the incidence of pneumonia was at least as high as, or higher than, the present rate in the decade from 1920 to 1930. Inclusion of fatal cases would raise the annual rates in this period by at least another 20 to 25 per cent so that it must be concluded that pneumonia is no more prevalent, and probably less so, than it was at that time. It is rather interesting to note that during the depression years of 1931 to 1935 pneumonia frequency was at its lowest among the employed. Interestingly enough a similar decrease in the incidence of pneumonia occurred in Sweden during these years.[3] The gradual decrease in pneumonia incidence over the period of a decade from 1920 and its gradual rise again during the past 10 years suggests the possibility of a cyclic prevalence such as is known to exist in certain other infectious diseases. Some years ago it was suggested that a 3 year cyclic incidence rate exists for pneumonia,[4] but this has not been sub-

FIGURE 2

ANNUAL RATES OF PNEUMONIA INCIDENCE

SEPARATE QUARTERS 1929 - 1942 INCLUSIVE

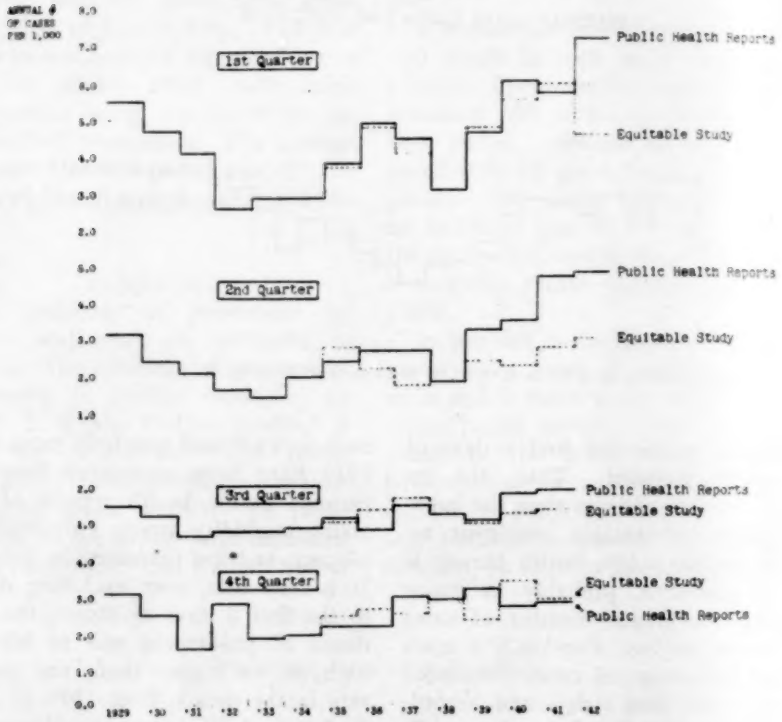


TABLE 3

Pneumonia Incidence per 1,000

Source: Public Health Reports of Disabling Morbidity among Industrial Employees

Period	*Quarterly Rate (Annual Basis)*				*Annual Rate*
	1st	*2nd*	*3rd*	*4th*	
1920	10.3	3.9	1.7	3.3	3.5
1921	...	...	...	...	2.6
1922	...	...	...	...	3.8
1923	...	...	...	...	3.8
1924	...	...	...	...	3.1
1925	...	...	...	...	3.5
1926	...	...	...	...	3.1
1927	...	...	...	...	3.3
1928	...	...	...	...	3.4
1929	5.5	3.2	1.5	3.1	3.1
1930	4.7	2.4	1.2	2.5	2.5
1931	4.1	2.1	0.7	1.6	2.1
1932	2.6	1.7	0.8	2.8	2.0
1933	2.9	1.5	0.8	1.9	1.7
1934	2.9	2.0	0.9	2.0	2.0
1935	3.8	2.4	1.1	2.2	2.3
1936	4.9	2.7	0.9	2.2	2.6
1937	4.5	2.7	1.5	3.0	2.9
1938	3.1	1.9	1.3	2.9	2.3
1939	4.7	3.3	1.1	3.2	3.1
1940	6.1	3.5	1.8	2.7	3.5
1941	5.8	4.7	1.9	2.8	3.7
1942	7.2	4.8			

stantiated. The changing incidence is not sufficiently striking to give any credence to the hypothesis that the frequency of pneumonia varies in any regular manner over a period of time. Although a cyclic incidence of pneumonia cannot be claimed, the variation in incidence rates which are seen to have existed prior to 1938 indicate that little specific significance can be attached to the increase in incidence of pneumonia to 3.0 per 1,000 during the past 3 years as compared with an incidence rate of 2.6 per 1,000 in the 3 year period preceding the use of sulfonamides.

TABLE 4

Pneumonia Deaths, 1930–1942 Inclusive in the City of New York

Year	*Deaths*	*Deaths Per 100,000 Population*
1930	8,058	116.0
1931	9,245	132.2
1932	7,827	111.1
1933	7,686	108.2
1934	6,755	94.4
1935	6,385	88.6
1936	6,549	90.2
1937	6,504	89.0
1938	4,737	64.3
1939	4,234	57.1
1940	3,410	45.7
1941	3,383	45.0
1942	2,959	39.1

Source—February 1942 *Quarterly Bulletin* City of New York Department of Health

CASE FATALITY RATES

Mortality studies are unanimous in revealing a marked decrease in the pneumonia death rate since 1938. The New York City death rate from pneumonia per 100,000 population over the past decade is summarized in Table 4.[5] Analysis of pneumonia deaths among the industrial workers studied by us shows the death rate per 100,000 to be 54.7 for the period 1935 to 1938, compared with 11.9 for the period 1939 to June 1, 1942. The decrease in the industrial group is much more striking than in the general population. The death rate in both periods is likewise much lower in the industrial group than in the population as a whole; which is to be expected, since pneumonia death rates are highest at the extremes of life in age groups not included in the industrial population. It is of interest to note further that the death rate has fallen much more among the industrial age group than in the general population, suggesting that the sulfa drugs are of greatest benefit between the ages of 15 and 65. Beyond the age of 65 where pneumonia frequently is complicated by other serious illnesses, therapy with the sulfa drugs appears to be somewhat less efficacious.

The effect on the annual death rate does not give an entirely valid expression of the changes in mortality wrought by the newer therapy, for account must be taken of any changes in incidence. In view of the fact that the incidence of pneumonia has increased since the introduction of the sulfa drugs the effect on mortality is even more striking than is indicated by the gross annual mortality rates.

The true measure of the benefit resulting from sulfonamide therapy must be evaluated by its effect on case fatality rates and not by gross mortality figures which are influenced by and take no account of changes in incidence. Analysis of the case fatality in the series here reported revealed a mortality of 20.8 per cent ($\pm$ 1.5)* in the first period (1935 to 1937) and 3.9 per cent ($\pm$ 0.5)* in the second period (1939 to June 1, 1942), indicating that a remarkable reduction in mortality has occurred since the introduction of sulfonamide medication. The case fatality of approximately 4 per cent is lower than the case fatality rates of 8 to 12 per cent reported in most series of hospitalized cases treated with sulfona-

* Standard Deviation

mides.[6, 7] The present study, however, includes only cases of pneumonia between 15 and 65, and it is well known that mortality in this age group is less than at the extremes of life. Furthermore, a large percentage of these may not have been so seriously ill as to require hospitalization. Rosenthal, McCall, and Pratt recently reported a similar case fatality rate of 3.8 per cent in 132 cases treated in the home with sulfathiazole.[8] The findings indicate that between the ages of 15 and 65 the case mortality rate in pneumonia is now of the order of 4 per cent. Stahle[9] recently reported a case fatality rate of 6.82 per cent in an analysis of 6,321 cases with pneumonia between the ages of 13 and 60, who were treated with chemotherapy, and Plummer, et al.[10] in a smaller series of cases under their observation reported a mortality of 3.4 per cent in patients between the ages of 30 and 50 who were treated with chemotherapy.

DURATION OF ILLNESS AND ECONOMIC ASPECTS

Clinically it is found that not only is the mortality favorably influenced by sulfonamides, but the course of the disease is greatly abbreviated. It is extremely rare to observe a classic crisis with modern treatment and most frequently fever subsides by rapid lysis within 36 to 48 hours. The period of hospitalization too has been greatly abbreviated. While pneumonia now responds rapidly to treatment in most cases, the total duration of disability remains not inconsiderable, and it is still several weeks before the average patient is ready to resume his activities.

The average duration of illness in terms of days away from work was 33 days in 1941, compared with an average work loss of 45 days in 1935. The modal or most frequent duration of illness in 1941 was 27 days compared with 38 days in 1935. The entire period studied has as the average duration of non-fatal pneumonia illness 43 days in the first period (1935 to 1937) and 36 days in the second period (1939 to June, 1942). The shortening of illness is actually greater than would appear from these averages, for many previously fatal cases now survive to become illnesses of longer than average duration.

Illness is a more important cause of industrial absenteeism than any other factor, and respiratory tract diseases are responsible for more loss of time from work than all other illnesses combined. Pneumonia is relatively infrequent compared with other acute respiratory infections, such as colds and influenza, but since the average case results in approximately a month's loss of time from work, pneumonia becomes a factor of significance in itself. It is of interest to compute what savings have accrued to industry through the introduction of sulfa drugs.

Recent statistics indicate that there are approximately 52,000,000 gainfully employed persons in the United States.[11, 12] Based on incidence and mortality rates of pneumonia established in the present study, it is calculated that the use of sulfa drugs in pneumonia is saving the lives of some 25,000 industrial workers annually and the considerable expense and time incident to replacing these workers in their specialized occupations. Had the incidence of pneumonia remained unchanged, the beneficial effect of the sulfa drugs in shortening the duration of illness would have resulted in a further annual saving of over 1,000,000 working days. However, since the incidence has increased the actual savings in working days actually is appreciably greater.

COMMENT

This study was undertaken to determine whether the widespread use of

sulfa drugs * has effected any change in public health aspects of pneumonia, such as prevalence, comparable with the striking changes observed clinically in the treatment of the individual case.

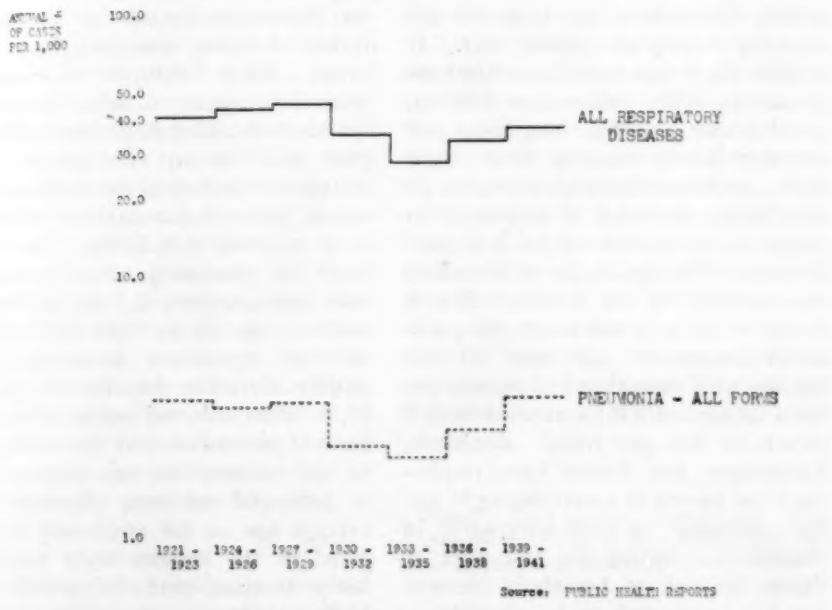
An increased frequency of pneumonia was not anticipated, and while not marked in degree, it is sufficiently definite to warrant analysis. The incidence of pneumonia in 1940 and 1941 was higher than in any year in the preceding decade, but was no greater than the frequency rate in the preceding decade from 1920 to 1930. It is possible that the increased prevalence in the past few years reflects a cyclical change in incidence, although it has not been shown that any definite periodic fluctuation occurs in pneumonia as in certain other infectious diseases. It is well known that upper respiratory infections predispose to pneumonia and the high frequency of pneumonia immediately following the last war was undoubtedly due to the influenza pandemic at that time. The change in incidence of pneumonia from 1921 to 1938 paralleled very closely the yearly change in incidence of other respiratory diseases (Figure 3). However, in the past few years since 1938 an increase in the incidence of pneumonia has occurred out of proportion to a much lesser increase in prevalence of other acute respiratory diseases. The current high pneumonia rate, therefore, is not following passively in the wake of other respiratory illnesses and must be attributed to some other cause.

The increase in the number of cases of pneumonia cannot be ascribed to any improvement in the diagnostic acumen.

FIGURE 3

RESPIRATORY DISEASES LASTING 8 CONSECUTIVE CALENDAR DAYS OR LONGER
TRIENNIAL AVERAGE FREQUENCY PER 1,000 MALES, 1921-1941

(LOGARITHMIC SCALE)



Source: PUBLIC HEALTH REPORTS

* A recent survey indicates that sulfonamide medication is employed in over 85 per cent of fatal cases of pneumonia, and is probably used in an even higher percentage of recovered cases.[24]

In the case of coronary artery disease the tremendous increase in reported incidence undoubtedly has been due in large part if not entirely to improved methods of diagnosis such as the use of the electrocardiogram, but the signs of pneumonia have long been well known and it seems dubious whether x-rays have been employed as a diagnostic method to any considerably greater degree during the past few years.

Wartime living conditions may play a part in accounting for the increasing prevalence of pneumonia. The incidence of other infectious diseases, notably tuberculosis, has increased appreciably during the present war. It is quite likely that such factors as congestion in cities, inadequate housing, crowded transportation, long hours and irregular habits resulting from night shifts, inadequate medical attention, all may have contributed to a general increase in the prevalence of infectious diseases. The significance of crowding was revealed in the National Health Survey [13] where it was found the pneumonia frequency rate was 6.7 for families with more than 1½ persons per room, as against 4.0 for families with 1 person or less per room. Benjamin, Ruegsegger, and Senior have emphasized the hazard of overcrowding,[14] and the occurrence of cross-infection [15] in pneumonia. During the first week of illness the risk to household contacts has been estimated to be sixty times greater than in the general population. In a recent study on the epidemiology of pneumonia,[16] Smillie and Jewett emphasized the spread of pneumonia in a closed community, finding a rapid spread of type 14 pneumococcus. This study suggested "that a virulent strain of pneumococcus may enter a community, permeate it, invade many individuals, and linger for a considerable time without causing any apparent illness. Some untoward factor may then enter the picture (such as an acute respiratory infection) which will lower the resistance of the carrier of the virulent pneumococcus strain to such a degree that the strain will invade the tissues of the body and produce a serious illness."

One may note that a definite upswing in the prevalence of pneumonia was apparent in 1940 before any great economic or social dislocation had been brought about by the war. The tremendously increased industrial activity in the United States during the past few years has drawn numbers of older people into industry, which has been all the more accentuated by the withdrawal of young men into the armed forces. Many employees of advanced years are reluctant to admit their true age when obtaining employment so that there must be an even greater percentage of industrial workers of advanced years than would be indicated in a statistical tabulation. The incidence of pneumonia rises gradually from approximately 2.5 per 1,000 annually at age 20, to 6 per 1,000 at age 60, the prevalence increasing very rapidly thereafter beyond the age of 60.[13] The observed increased prevalence of pneumonia may be due in part to an increase in the average age of industrial workers. However, the average age of the employees investigated in the present study remained fairly constant over the period from 1937 to 1941.

One may speculate whether the use of sulfa drugs has had any specific effect, *per se*, on the frequency of pneumonia. This is unlikely for several investigators have shown that the antibody response in pneumonia is not significantly altered by sulfa therapy,[17–21] nor has it been found that there are more carriers following pneumonia in sulfa treated cases.[22]

During the past year an increased number of cases of atypical pneumonia

have been observed which have proved refractory to sulfonamide treatment. A virus etiology has been demonstrated in some cases, but it would be a serious error to conclude that a new disease has suddenly become widely prevalent, and that all cases of pneumonia which fail to respond in the usual manner to the sulfonamides are examples of virus pneumonia. It has been shown that pneumococci may acquire a resistance to sulfonamide during treatment and that such organisms remain sulfonamide-fast in succeeding generations.[23] The frequent failure of sulfonamide therapy observed during the past year may represent instances of pneumonia due to sulfonamide-fast organisms, and a diagnosis of "atypical" or virus pneumonia should not be made until every effort has been expended to demonstrate pneumococci in the sputum. The cases of pneumonia which form the basis for the present report include all types of pneumonia and if it is true, as some believe, that the prevalence of virus pneumonia has actually greatly increased, this may account for the observed increased frequency of pneumonia. Since the mortality rate of virus pneumonia is very low, the inclusion of these cases may be a factor contributing to the very low mortality of 4 per cent observed in the present series.

SUMMARY

A study was undertaken to ascertain whether sulfonamide therapy has had any effect on public health aspects of pneumonia comparable to the remarkable changes observed in treatment of individual cases. An analysis was made of pneumonia experience among large groups of industrial employees carrying group health and life insurance with the Equitable Life Assurance Society of the United States, and a comparison was made between the pre-sulfonamide years 1935–1937 and the period from January 1, 1939, to June 1, 1942.

Most striking was the reduction in the case fatality rate from an average of 20.8 per cent to 3.9 per cent in this short space of time. Significant too was a decrease in the total duration of illness from the modal (most frequent) period of 38 days in 1935 to 27 days in 1941. It is calculated that the advent of sulfonamide therapy has proved a boon to industry, saving the lives of some 25,000 workers annually. A further annual saving of over a million working days has resulted from shortening of the period of illness.

The incidence of pneumonia has increased from an average of 2.6 per 1,000 annually in the pre-sulfonamide period to 3.0 per 1,000. Possible reasons for the increased frequency of pneumonia are discussed. There is no evidence that sulfonamide therapy, *per se*, is responsible for the increased prevalence of pneumonia and other factors such as congestion in industrial areas incident to the war effort may be responsible. Since all types of pneumonia were included in the study it is possible that an increase in the number of cases of "atypical" or virus pneumonia may in part be responsible for the observed increase in the frequency of pneumonia.

NOTE: The authors acknowledge with thanks the assistance of Miss Ruth Unverzagt in assembling the statistical data.

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Industrial Eye Health Problems*

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IN a war program industry is geared to top capacity. It must of necessity, therefore, reduce waste, not only of time, equipment, machinery and raw materials, but also of man power and skills. It is useless and unfair to ask any employee to improve his work and reduce his mistakes if he is not able to see the work, or does not have the necessary visual skill for his specific job. An understanding of the manifold elements that make for visual skill has until recently been overlooked. The protective measures needed to cut down eye hazards, while understood, have been inadequately applied.

Especially during a period of stress such as the present it is necessary to focus attention on visual conservation in industry. There are two main problems which are of concern to both management and employees.

The first concerns the need for visual *admission* standards. In many industries where visual requirements have been set up, a single arbitrary specification has been used, based only on central visual acuity for distance. Instead, one should recognize the eyes as a binocular unit with multiple functions, each of which has definite bearing upon the individual's ability to meet the demands of a specific job. This, in turn, permits a simple classification of jobs, grouping together those having approximately the same types of visual work and safety requirements. Already there is some basis for such grouping, but further investigation is needed to develop a placement program that is adequate to fit any and all types of industry. Selection will need to be concerned not only with general aptitudes and physical health, work skills, and craft training, but also with visual aptitudes.

The second problem involves the use of a similar visual testing procedure in conducting a *survey* of employees within a given industry. Here it is important to apply the same yardstick of standards of visual functions, based on the needs of the job, as that used in hiring new applicants. Thus employees already on the pay roll, who fail to meet the visual requirements for their specific job, can be made to qualify for the special visual demands of that job, or can be transferred where necessary.

Industry is already engaged in a five to ten year stretch of intensified activity no matter what the international sceneshifts may be. Perceptual abilities of all kinds are the first essential with which to meet this immense effort. Among these abilities, excellence of visual performance ranks first.

EYE PROTECTION

The question of proper handling of eye injuries is necessarily in the hands of the ophthalmologist consulted. The constantly changing processes in industry mean new uses of gases, fumes, chemicals, glares, and materials whose possible toxic effect on the eye demands persistent study by the ophthalmologist. The engineer too must play his part

* Read before the Industrial Hygiene Section of the American Public Health Association at the Seventy-first Annual Meeting in St. Louis, Mo., October 29, 1942.

by revision of processes to reduce hazards and by developing devices and methods for the control of such hazards. Goggles for protection from flying objects, from gases, from the chemicals (liquid or solid), from light, etc., are constantly being improved. Samples of such personal protective equipment designed for every purpose are displayed at each safety conference and are available to any safety director in either a large or a small plant. Special goggles for women are being developed with reference to the weight of the goggles and the cosmetic aspects. The setting up of a goggles program includes the study of the type of goggle and of the economics involved. An "all out" program which provides goggles for everyone, with industry paying the full bill is, generally speaking, the best. Special economic problems arise in providing goggles which correct refractive errors. Some employers may feel that the employee who needs glasses to see in private life should have a greater share in financing the goggles where the lens prescription is incorporated. Those industrial processes that involve frequent replacement of the lenses or goggles, as in excessive pitting, have other special economic angles. All of these variables can be worked out with fairness both to management and to the employee, where there is good will and a desire to have a fully satisfactory arrangement. Good quality, standard tested merchandise is assumed. Fitting of frames, temple pieces, measurement of interpupillary distance, etc., are essential for ordinary plano goggles as well as corrected-vision protection. An ambulatory repair service has proved excellent in many large plants. And, finally, the proper educational background work and the sharing by labor and management in setting up specific plant methods, makes an eye protection program generally practical and possible.

VISUAL TESTING IN INDUSTRY

On the basis of our recent visual survey of over 16,000 workers in ten or more types of industry, presented in detail to the American Academy of Ophthalmology and Otolaryngology, and an intensive study of the visual requirements of some additional 10,000 workers for specific jobs, we could come to only one conclusion—that to evaluate an individual's ability to do a certain job safely and efficiently as far as his vision is concerned, involves much more than a mere knowledge of his central visual acuity for distance.

Only when he has before him all of these data can the admission examiner decide whether a man is fitted to be a craneman or machinist, or whether a girl can be an efficient inspector or comptometer operator. One of the most striking revelations of this survey was the extraordinary correlation between accuracy and efficiency of work on the one hand, and perfection of visual performance on the other. These relationships show conclusively that much more than visual acuity is involved in the evaluation of "eyes for the job" and that any other criteria are obsolete.

Visual testing falls into three main categories—(a) preëmployment, (b) periodic rechecks of special groups, and (c) plant surveys. For the duration of the war especially, there need be few or no rejections of applicants for jobs. However, for this very reason there must be more accurate and practical admission records in order that placement personnel can quickly consider visual safety and visual skill of applicants. More than ever we want to conserve eyes, man power and high production efficiency. In certain dangerous jobs especially dependent on full visual acuity and binocular coördination, periodic rechecks are needed to discover changes in the eyes. For example, crane operators and drivers of

automotive vehicles and machines are as much in need of periodic visual appraisal as are aeroplane pilots, for whom such reappraisals are already accepted practice. There are certain exceedingly important and vital jobs, such as the reading of precision instruments like micrometers and gauges, setting of precision lathes, inspecting or reading of blue prints, where accuracy and production efficiency depend also on the changing human eye. For employees in all of these and many more types of work, rechecks are indicated at stated intervals. Some industries which now have been made a part of the vital war effort have never had any sort of visual testing program. Critical divisions and sections of these plants will profit tremendously by a visual survey geared to meet their individual needs. Probably not until after the war will a visual testing program become possible as an inclusive entity.

The basic visual data industry needs recorded for each employee include:

1. Distant and near central visual acuity without glasses
2. Distant and near central visual acuity with glasses
3. Muscle unbalances (phorias) for distance and near
4. Depth perception
5. Color appreciation levels
6. Near vision test, depending on individual and job

Special emphasis on near vision tests is always indicated where an employee is 40 years and over. But for applicants for all jobs requiring exact visual skills at a working distance within 16 inches there should be added a standardized test for near point at convergence, and near point of accommodation and a refraction for work distance with the lenses prescribed for that specific distance. This statement cannot be overemphasized as industry draws to its ranks more employees in the upper age brackets and more individuals previously unused to close work. The ordinary street-wear bifocals do not necessarily meet the work needs as related to distance or types of spectacles indicated for occupational use.

The correlation between degree of perfection of visual skills and production level has until very recently been largely overlooked in this country.* Some work had been done in England but a dramatic and brilliant statistical analysis of this and many other hitherto unstudied phases of the problem of visual factors in efficiency was made possible through our research program by the coöperation of the Department of Applied Psychology at Purdue University. This breakdown of survey data into almost a million correlations will be an epoch-making study. This joint effort by industry, psychology, and ophthalmology seeks to validate technics, validate the needs and proposed instrumentation, establish a scientific yet practical interpretation of visual defects from the standpoint of occupational needs, and to lay a solid foundation for the contemplated program of remedial recommendations both before and after hiring. All the work to date points to a direct and consistent relationship between maximum production, maximum accuracy, and the visual perception components.

Medicine may now therefore directly conserve not only the health of an individual's eyes, but can help to increase the production schedules for management and raise the income of the employees. The various rehabilitation problems involved in a war program are becoming more and more important. Among these corrective problems are: training of adult individuals who lack coördination of the eye muscles to develop the needed binocular skills; proper refraction for job distance and

* Tiffin, Joseph, Ph.D. *Industrial Psychology.* Prentice-Hall, 1942, pp. 124–184.

prescription of glasses in relation to that job; detection and care of changes or disease in an employee's eyes as revealed in the periodic testing; equipping each individual so that he is able to meet the visual requirements of his assigned job. Advances and progress in the field of industrial ophthalmology, in eye protection equipment, in the analysis of visual aptitudes, in the classification of jobs as related to visual skills and, especially, the unexpected responsibilities of ocular rehabilitation in a country at war, have been so rapid that constant reference to current scientific literature is indicated.

The contribution of ophthalmology to the war program therefore includes the provision of reliable protection to the eyes of workers, with the aim of maximum production and minimum waste.

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Tetanus Toxoid and Its Use for Active Immunization*

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THIS study records the antitoxin response to tetanus toxoid in young adults. The first part of the study deals with the results obtained following two doses of toxoid as compared with three doses of an identical antigen. The second part has to do with the response to three doses of a combined antigen, made up of typhoid, paratyphoid A and B vaccine, suspended in tetanus toxoid.

Preparation of toxoid—In the preparation of the toxoid used in these studies, the following details are relevant. Upon the outbreak of war large quantities of tetanus toxin were prepared in anticipation of the requirements of toxoid for the armed forces. The broth used for this purpose was a veal infusion base with 1.5 per cent Witte's peptone added. With this medium the potency of the toxin obtained varied between 20,000 and 150,000 m.l.d. (guinea pig) per ml. Detoxification was carried out in the usual manner with formalin and storage at 37° C. The comparison of the antitoxin response to two doses and to three doses of antigen was based upon the results obtained with toxoid thus prepared. For convenience of expression and reference, toxoid made in that manner is designated, Toxoid A. Experience with this toxoid, used under field conditions, showed that reactions of an anaphylactic character were occasionally encountered.[1] In consequence of this, the use of Witte's peptone in the medium for the preparation of toxin was discontinued in the spring of 1940, and hog stomach autolysate plus veal infusion was substituted, Toxoid B. Later, the medium used for the production of toxin was one adopted for the purpose by E. M. Taylor,[2] the basis of which was half veal infusion and half hog stomach autolysate treated with calcium chloride in order to reduce the iron content to a fixed level. A small amount of nicotinic acid was added, and the pH set at about 7.0. The strain of *Clostridium tetani* used throughout for the production of toxin was obtained in 1929 from the New York State Health Department, and used in these laboratories continuously since that time. Incubation was carried out at between 35° C. and 36° C. for 10 or 11 days. The yield of toxin with this medium has been satisfactory. During a period of 18 months, for example, of 130 lots of toxin made, 72 were between 100,000 to 220,000 m.l.d. per ml. Twenty lots of the 130 had a value of less than 30,000 and were discarded. Toxoid made in this manner with Taylor broth,

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Toxoid C, was combined with typhoid, para A and para B vaccine. The broth used for tetanus Toxoid B and tetanus Toxoid C is basically very similar to that used by Ramon for his combined antigen employed for many years in the French armed forces, and without the occurrence of reactions of an anaphylactic character. Similarly no such reactions have been reported following the extensive use of Toxoid B for a period of approximately 1 year, and of Toxoid C for 2 years. The antigenicity of the toxoid was tested either by the method of flocculation, antitoxin response in guinea pigs, or combining power, or a combination of these methods.

PART I

Comparison of the antitoxin response to two and three doses of tetanus toxoid — This experiment was carried out in two groups of volunteers to determine the comparative antitoxin response to an identical antigen, Toxoid A, used in two doses and three doses of 1 ml. given during the same total elapsed time. The intervals shown in Table 1 were approximately 6 weeks between the first and second doses in the two dose group, and in the three dose group 1 month between the first and second and 2 weeks between the second and third doses. A blood sample was obtained 70 days after the final dose in each group. The antitoxin titrations of the serum were carried out at various levels, in mice.

For convenience, the results of the titration of the 61 blood samples of the two dose group, and the 54 in the three dose group may be considered as falling into two categories. Thus, in the two dose group, 82 per cent of persons have at least 0.01 unit of antitoxin, in contrast to 92 per cent in the three dose group. Taking 0.1 unit as a basis of comparison, the results in the two groups are more strikingly contrasted; 23 and 68 per cent respectively. On the basis of this study, which was carried out late in 1939, it was felt justified to recommend without hesitation that three doses of toxoid be used in place of two, and given within the elapsed time of 6 weeks. As a matter of fact, since three doses of typhoid para A and para B vaccine were recommended for the armed forces it seemed convenient and logical for administrative purposes to combine tetanus toxoid with the typhoid antigen (T.A.B.T.)* as had been advocated by Ramon, and had been the current practice in the French armed forces since 1936.[3] This combined antigen was introduced for use in the Canadian armed forces in the spring of 1941.

TABLE 1

Units of Tetanus Antitoxin per ml. of Blood Serum

70 Days After 2 or 3 Doses of Tetanus Toxoid A

Number of Doses of Tetanus Toxoid A	Number of Subjects	Units Antitoxin 70 Days after Last Injection					Per cent	
		<0.001	0.001–<0.01	0.01–<0.1	0.1–<1.0	1.0	≦0.1	≦0.01
2 *	61	2	9	36	14	0	23	82
3 †	54	0	4	13	36	1	68	92

* 39 days between doses
† 28 and 11 days respectively between doses

Antitoxin response to a recall dose— It was urgent to gain experience of the effectiveness of the recall dose ("dose de rapell," of Ramon) for tetanus toxoid. The coöperation of 20 persons

* 750 million *Bacillus typhosus*, 250 million *B. paratyphosus* A, and 250 million *B. paratyphosus* B, per ml. of tetanus toxoid, containing about 10 Lf per ml.

was obtained (8 in the two dose group, and 12 in the three dose group) to take 0.1 ml. of Toxoid A, 70 days after the last dose had been given. The small secondary stimulus was chosen primarily to determine whether by a small subcutaneous dose one could detect the persons who had become highly sensitive to Witte's peptone toxoid, Toxoid A, through previous inoculations. If no reaction were obtained with this small dose within, say, ½ hour, the full dose could then, if desired, be administered with a greater feeling of safety. In the group of 20 volunteers no evidence of sensitivity was encountered. This is not surprising, considering the small size of the group and the known infrequency of reactions, following Toxoid A preparations. It is obvious that the small dose used in our study weighted the odds against the antigen. If, under these exacting conditions, the response in antitoxin were good, one would perhaps be justified in inferring that a larger dose would not evoke a lesser response and, indeed, probably a better one. That such is the case is borne out later in this study. Because of the urgency of the situation, it was also thought justifiable to shorten the time between the primary series of inoculations and the recall dose to 70 days, and to measure the response in antitoxin within 9 days. These factors also tend to weight the odds against the effectiveness of the antigen. Thus by imposing the very exacting and unfavorable conditions under which the antigen was used, the results, if good, could be accepted with some degree of confidence, and serve as a firm basis for formulating recommendations as to the dosage of tetanus toxoid. It will be seen from Table 2 that all but 2 in the three dose group, and 1 in the two dose group, showed an increase in antitoxin within 9 days. Thus, in spite of the limitations imposed upon the antigen by the conditions of the experiment, 85 per cent of 20 persons showed an increase in antitoxin following the small secondary stimulus of 0.1 ml. There is much evidence that the antigen now supplied has much higher antigenic potency, hence the results of this experiment are particularly encouraging. The tetanus toxoid now used is made from toxin pooled to contain 100,000 m.l.d per ml. as contrasted with the early lots of toxin of 40,000 m.l.d. per ml.

The effectiveness of a small stimulus, 70 days after the primary inoculation,

TABLE 2

Units of Tetanus Antitoxin per ml. of Blood Serum

Immediately Before and 9 Days After Recall Dose of 0.1 ml. Tetanus Toxoid A

Units Immediately before Recall Dose	*Number of Doses*	*Number of Subjects*	*Units Antitoxin 9 Days after Recall Dose*			
			0.05-<0.1	*0.1-<0.4*	*0.4-<0.8*	*=0.8*
-0.01	Two *	1	1	..	..	..
0.01-<0.1	"	5	..	5	..	..
0.1 -<0.4	"	2	..	1	1	..
0.01-<0.1	Three †	1	..	1	..	..
-0.1	"	1	..	1	..	..
0.1 -<0.4	"	9	..	2	7	..
0.4 -<0.8	"	1	..	..	..	1
Total		20	1	10	8	1

* 39 days between doses
† 28 and 11 days respectively between doses
Recall dose 70 days after last dose
85 per cent of the 20 subjects showed an increase in antitoxin 9 days after recall dose.

was also explored in a group of 38 persons, 25 in the two dose group and 13 in the three dose group, 1 month after the secondary stimulus of 0.1 ml. Toxoid A. The response after 30 days was essentially the same as after 9 days (Table 2), that is to say, 85 per cent showed an increase within 9 days and 84 per cent an increase within 30 days.

PART II

Response to three doses of T.A.B.T. —Before the combined antigen, which is officially designated as T.A.B.T., was recommended for use in the armed forces it was urgently required to carry out a trial of the antigen under field conditions. This trial was commenced in July, 1940, on a small group, from 79 of whom we were able to obtain blood samples 8 weeks after the third dose. Three doses of 1 ml. of the combined antigen, T.A.B.T., were given with intervals of 3 weeks between doses. It will be seen from Table 3 that 99

TABLE 3

Units of Tetanus Antitoxin per ml. of Blood Serum, 56 Days After Third Dose of T.A.B.T.

Units Antitoxin per ml. of Serum	*Number of Subjects*	*Per cent of Subjects*	
<0.001	1	1.3	12.7%
0.02–<0.1	9	11.4	
0.1–<0.5	54	68.3	87.3%
≧0.5	15	19.0	
Total	79	100.0	

per cent of 79 persons had at least 0.02 unit of antitoxin, and 87 per cent had at least 0.1. This is a very satisfactory result and gives one a high degree of confidence in the effectiveness of tetanus toxoid as an antigen. Based chiefly on theoretical evidence, supported by laboratory experiment, 0.01 unit has been suggested by certain workers [4] as the level required to establish clinical immunity. On this basis, the fact that 99 per cent of 79 persons had 0.02 unit per ml. of serum leaves little to be desired. However, it should be emphasized, though it is perhaps not surprising, that one individual did not respond with any detectable amount of antitoxin (<0.001 unit).

Although the figures are not large and the conditions for a critical test are wanting, since the identical antigen was not used in the comparative tests, the result of the trial with T.A.B.T., suggests that the combined antigen may be more effective than without the added typhoid element (see MacLean and Holt [5]). It happened that the initial m.l.d. (40,000) of the toxin was the same in each of the particular lots of Toxoid A and Toxoid C used for the results shown in Table 1 and 3. In comparing the two groups, it will be noted that 68 per cent of 54 persons (three dose group) had at least 0.1 unit of antitoxin as contrasted with 87 per cent of 79 persons, following three doses of T.A.B.T. The difference between the results in the two groups, one without, the other with added bacterial vaccine, is of statistical significance. It is, of course, not to be inferred that the initial m.l.d. of the toxin is the sole determining or necessarily the most important factor in the antigenicity of the toxoid made therefrom.

Response to a recall dose of T.A.B.T. —An opportunity arose to obtain information on the rapidity and degree of antitoxin response to a secondary stimulus using T.A.B.T. 0.5 ml. at approximately 1 year after the primary course of inoculations. The antigen used in the initial course was Toxoid A or Toxoid B (Table 4a), given in two doses, generally at 6 weeks interval, or three doses of T.A.B.T. given at intervals of 3 weeks (Table 4b). This latter antigen was introduced in the Canadian armed forces in the spring of 1941.

It must be emphasized that the groups under investigation are not en-

TABLES 4A AND 4B

Units of Tetanus Antitoxin per ml. of Blood Serum After First Recall Dose of 0.5 ml. T.A.B.T.

Table 4A Primary Inoculation Toxoid A or B Units of Antitoxin Just Before Recall Dose	*Number of Subjects*	*Units Antitoxin per ml. Serum after First Recall Dose*										
		< 0.001	*0.001– <0.01*	*0.01– <0.1*	*0.1– <1.0*	*1.0– <5.0*	*5.0– <10*	*10– <20*	*20– <30*	*30– <40*	*50– <60*	*70*
<0.001	21	3	1	3	11	3	..	..	..	..	..	..
0.001–<0.01	21	..	..	1	2	16	2	..	..	..	..	..
0.01 –<0.10	39	..	..	..	6	25	1	4	2	..	..	1
0.10 –<1.0	20	..	..	..	..	13	1	5	..	1	..	..
1.0 –<5.0	4	..	..	..	..	1	..	2	..	..	1	..
Total	105	3	1	4	19	58	4	11	2	1	1	1
Table 4B Primary Inoculation—T.A.B.T. Titrations not done before 1st Recall Dose	63	1	2	1	1	13	9	33	1	1	1	..

1st Recall dose given 12–18 months after last dose of primary series of inoculations

Table 4A—Primary inoculation = 2 doses of Toxoid A or B—blood drawn immediately before and 10–14 days after 1st recall dose

Table 4B—Primary inoculation = 3 doses of T.A.B.T.—blood drawn from 10 days to 9 months after 1st recall dose

tirely satisfactory from the point of view of the accuracy of history of primary inoculations. For example, of 105 persons (Table 4a), in 16 instances no data were obtained as to previous history, except that the subjects had been required to have their recall dose. Under the circumstances of the mobility of troops it was impossible to obtain more accurate data. In Table 4a, are shown the results of a group given initially Toxoid A or B, two doses of 1 ml. with an interval of 6 weeks. Of 105 subjects, 92 per cent showed at least 0.1 unit per ml. within 10 to 14 days after the first recall dose of 0.5 ml. of T.A.B.T. Actually 74 per cent of the whole group had more than 1 unit, 15 per cent more than 10 units, and 1 individual, 70 units. As is well established in the response to diphtheria toxoid, the individual variation is very great. It is striking that a small group responded either not at all, or very poorly. Fortunately this is a small group; 3 only showing no response within the limits of the test (<0.001 unit). It may be significant that the 3 persons who showed no measurable response (<0.001 unit) to the recall dose had similarly no measurable antitoxin at the time the stimulus was given. One of these individuals is recorded as having had only one dose, approximately 2 years prior to the recall dose. Of the remaining 2, 1 had an interval of 2 months between his first and second dose, the other had 11 months between his first and second dose. However, one does not wish to emphasize these anomalies of inoculation as being the underlying cause for the poor response. The histories are not completely reliable and there are other similar anomalies in the group with good response. For example, there are, among the 105 subjects, 10 who are recorded as having had only one dose, but who as a group showed a satisfactory response following the recall dose. Every effort has been made to verify the histories of those who did not respond, and we have no evidence that they did not receive the doses as recorded.

It may be noted that, in general, the higher the level of antitoxin at the time of the secondary stimulus, the greater

the antitoxin response. For example, all those with 0.01 unit of antitoxin or more at the time of the recall dose, had at least 0.1 unit after the recall dose; indeed, the great majority had at least 1 unit. As a matter of fact, of those having <0.01 unit before the recall dose, none showed as much as 10 units after the recall dose, whereas, of those having at least 0.01 or more initially, 15 per cent had 10 or more units.

Table 4b shows the results obtained in a group similar to that shown in Table 4a, except that the initial series of injections was T.A.B.T., and no titrations were made upon the sera previous to the recall dose. The blood samples were not obtained strictly within 2 weeks, as is the case of the subjects of Table 4a—most of them being drawn within 2 months, and 2 at 9 months. It appears that, on the whole, the response to the recall dose following the initial injections of T.A.B.T. is better than that following two doses of Toxoid A or B. Thus 92 per cent of 63 persons had at least 1 unit of antitoxin per ml., in contrast to 74 per cent of 105 subjects of Table 4a. This difference is statistically significant. It should be emphasized that one person failed to respond with any detectable amount of antitoxin. Thus, in a total of 168 persons (Tables 4a and 4b)4 (2 per cent), did not respond to the recall dose, and 3 others responded poorly (<0.01 unit). Boyd and Maclennan[6] have mentioned the possibility of lack of response being overcome by a recall dose of toxoid in referring to the development of tetanus in 5 inoculated men. Our results show that of 21 persons (Table 4a) who had no detectable antitoxin 1 year after the primary injections, 18 responded to a recall dose. It seems clear that the majority of persons, even though they have no detectable antitoxin, do respond to a recall dose, but some do not.

Response to a second recall dose of T.A.B.T.—We were fortunate in being able to obtain blood samples from 31 persons who had had two recall doses of 0.5 ml. of T.A.B.T. at an interval of approximately 1 year. Blood was drawn at the time of the second recall dose and about 10 days later. The results are presented in Table 5a. It is of interest to contrast these results with those shown in Table 4a. In the latter table, 42 (40 per cent) of 105 persons had less than 0.01 unit per ml. of serum before receiving a recall dose, whereas all in Table 5a had at least 0.01 unit before receiving the second recall dose.

TABLES 5A AND 5B

Units of Tetanus Antitoxin per ml. of Blood Serum After First or Second Recall Dose of 0.5 ml. T.A.B.T.

Table 5A Units of Antitoxin 1 Year after 1st Recall Dose	*Number of Subjects*	*Units Antitoxin per ml. Serum after 2nd Recall Dose*			
		0.1–<1.0	*1.0–<5*	*5–<10*	*≥10*
0.01–<0.05	8	3	5	..	..
0.05–<0.1	2	1	1	..	..
0.10–<1.0	16	3	11	1	1
1.0 –<5.0	5	..	1	2	2
Total	31	7	18	3	3
Table 5B Titration Not Done before 2nd Recall Dose	36	3	13	12	8

Second recall dose given approximately 1 year after 1st recall dose
Table 5A—Blood drawn immediately before and from 10 to 14 days after 2nd recall dose
Table 5B—Blood drawn from 10 days to 17 months after 2nd recall dose

As might be anticipated, the level of antitoxin is, in general, much higher 1 year after the first recall dose than 1 year after the primary series of inoculations. In so far as the response to the second recall dose is concerned, only 1 of the persons in Table 5a had a level of antitoxin below 0.5 unit, whereas 8 per cent of 105 persons (Table 4a) had less than 0.1 unit. Table 5b shows the results of titrations obtained from a group similar to that in Table 5a, except that no blood samples were obtained previous to the recall dose, and that the samples were not obtained strictly within the 2 weeks time. All of these 36 sera showed at least 0.1 unit per ml. Thus, each of the 67 sera comprising Tables 5a and 5b had at least 0.1 unit per ml. after the second annual recall dose.

Although the numbers are not large, it may be of significance that, before the first recall dose was given, 20 per cent of persons shown in Table 4a had less than 0.001 unit per ml., and 20 per cent of persons, in addition, less than 0.01 unit per ml., after a primary series of inoculations 1 year previously. This is in striking contrast to the results presented in Table 5a, in which it is shown that all had at least 0.01 unit 1 year after the first recall dose, that is to say, 2 years after the primary inoculations. There seems thus no doubt that the level of antitoxin is higher a year after the recall dose than a year after the primary series of injections.

In view of these results and based upon the good and prompt response to a small dose of toxoid given 70 days after the primary injections (Table 2), we suggest that the interval between the primary three inoculations of T.A.B.T. and the first recall dose be not less than 3 and not more than 6 months, and the second recall dose be given 1 year later. This does not, of course, preclude the giving of toxoid at the time of the infliction of a wound whenever this should occur. Modification of this schedule may be made in order that the recall dose coincide as nearly as is practicable with the entry of troops into the combat zone.

In general, it may be assumed that the longer the interval between the primary series of injections and the recall dose the better. However, the shortening of the interval between the primary series and the first recall dose (4th dose) would seem from our study to offer certain distinct advantages. The antitoxin content would reach higher levels sooner, and be longer maintained, and the disturbingly low levels found 1 year after the primary series (Table 4a) would not obtain. Further, the second recall dose which in our studies has been shown to be very effective, could be given 15 to 18 months after the primary series in place of 24 months as is the current practice.

SUMMARY

By the use of a medium of veal infusion and hog stomach autolysate, tetanus toxin of high titer has been obtained. Following the use of toxoid made therefrom no reactions of an anaphylactic character have been reported.

By comparing the effectiveness of an identical tetanus toxoid, given to two groups in the same period, namely 6 weeks, our results show that the response in antitoxin in persons given three doses of tetanus toxoid is better than in persons given two doses.

Represented numerically. 68 per cent of 54 persons in the three dose group had at least 0.1 unit of antitoxin per ml. of serum 70 days after the last dose of tetanus toxoid, as compared with 23 per cent of 61 in the two dose group.

Under conditions which weighted the odds against the antigen, a small (0.1 ml.) secondary stimulus given 10 weeks after the primary series of inoculations caused 85 per cent of 20 persons to show an increase in antitoxin titer within 9 days.

A combined antigen of tetanus toxoid with typhoid vaccine (T.A.B.T.) given in three 1 ml. doses, 3 weeks apart, stimulated the production of at least 0.02 unit of antitoxin in 99 per cent of 79 persons, and at least 0.1 unit in 87 per cent.

Although the conditions for a critical comparison are lacking, since the identical antigen was not used in the two groups compared, the results suggest that tetanus toxoid with the typhoid element added (T.A.B.T.) is more effective than without.

Under field conditions the effectiveness of a recall dose of 0.5 ml. of T.A.B.T. was explored. Of 168 persons, 92 per cent had at least 0.1 unit of antitoxin per ml. of serum following the first recall dose.

In general, the antitoxin response to a recall dose is less in persons with low levels of antitoxin than in persons with relatively higher levels.

In general, the levels of antitoxin are distinctly higher in persons 1 year after a recall dose than 1 year after the primary inoculations.

From 10 days to 17 months after a second recall dose, given 1 year after the first recall dose, all of 67 persons had at least 0.1 unit per ml. of serum.

The recommendation is put forward that the first recall dose of T.A.B.T. (4th dose) be given not less than 3, and not more than 6 months after the primary series of injections. Modification of this schedule may be advisable in order that a recall dose coincide with the entry of troops into the combat zone

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Use of Current Birth Certificates in Planning a Maternal and Child Health Program*

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THE birth certificate contains a wide variety of information directly applicable to maternal and child health problems, and therefore can be used to good advantage in planning a maternal and child health program.

We shall discuss the information from the birth certificate according to (A) Data available without machine tabulation; (B) Data available with the use of machine tabulation, according to the following outline:

A. Data available without machine tabulation
   1. Number of births according to residence of mother
   2. Number of births according to town of occurrence
B. Data available by use of machine tabulation
   1. Number of births according to hospital where birth occurred
   2. Residence of mother according to hospital where birth occurred
   3. Blood test according to hospital where birth occurred
   4. Occupation of father according to hospital where birth occurred
   5. Occupation of mother
   6. Length of stay in community according to:
      a. Time of blood test
      b. Order of birth

The text of this paper demonstrates how information from the birth certificate can be used in planning such basic maternal and child health services as prenatal care, care at the time of delivery, postpartum care of the mother, and care of the infant.

Connecticut can be described as a compact industrial state of 1,709,242 population according to the 1940 census. The basic unit for the administration of local government and local health work is the town. There are 169 in all, of which Hartford is the largest, with a population of 166,267, and Union the smallest, with a population of 234. There are 24 towns with a population of over 10,000. During the period January 1 to July 1, 1942, there were 15,878 births reported. For this same period there were 1,170 maternity beds in 43 licensed maternity hospitals.

A record of the number of births is kept on a current month to month basis in Connecticut according to the residence of the mother and the place of occurrence. These records are open for inspection and analysis to all bureaus of the State Department of Health as soon as the birth certificate is received and recorded. If the information is summarized every 6 months, trends can be seen in time to plan necessary health services.

* Based on a paper presented at a Joint Session of the Vital Statistics and Maternal and Child Health Sections of the American Public Health Association at the Seventy-first Annual Meeting in St. Louis, Mo., October 27, 1942.

A. DATA AVAILABLE WITHOUT MACHINE TABULATION

1. An application of the use of the data according to the residence of the mother appears in Figure 1. Here is shown the location of those towns that have experienced a 50 per cent or more increase in resident births during the first 6 months of 1942, compared with the first 6 months of 1940. These towns have been correlated with towns considered to have inadequate nursing service. Nursing service was considered inadequate if, according to the records of the Bureau of Public Health Nursing, there was less than 1 public health nurse per 3,000 population. The director of the Bureau of Public Health Nursing, upon seeing this map, immediately saw areas in which the information could be applied to the educational and promotional public health nursing program.

By a similar treatment of the data on births, the existing and potential problems relating to medical services can be graphically pointed out. At a time when physicians are being withdrawn for military service, maps showing towns with an increased birth rate as well as an increased population due to war industries will be useful in determining which towns require more medical personnel for civilian needs. Persons directing a maternal and child health program will find such information useful in determining need for prenatal clinics, well child conferences, etc.

2. It was stated above that the birth certificates are recorded currently by town of occurrence in Connecticut, and that this information is readily available to establish trends for comparison between local health units, or with the state as a whole.

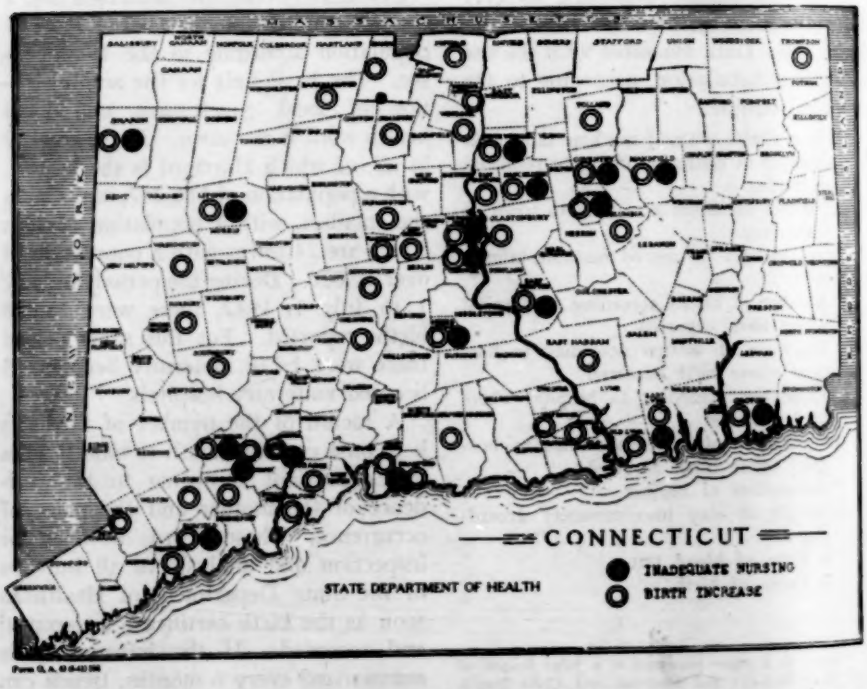

FIGURE 1—Inadequate nursing service in towns having a 50 per cent birth increase between January-June, 1940, and January-June, 1942

B. DATA AVAILABLE BY USE OF MACHINE TABULATION

1. It will be possible to open a much wider field of investigation by sorting and tabulating the births on a hospital and home delivery basis. When the number of maternity beds for which a hospital is licensed is known, knowledge of the number of births that occurred in a particular hospital makes it a simple task to compute the maximum number of postpartum days which that hospital can carry its maternity patients at an accepted occupancy rate. We have used a 75 per cent occupancy rate for all hospitals and hereafter shall refer to this maximum number of postpartum days that a hospital can carry its patients as a "theoretical maternity stay." The formula for computing the theoretical maternity stay is as follows:

$$\text{Theoretical maternity stay} = \frac{\text{Number licensed beds} \times \text{occupancy rate} \times \text{number survey days}^{*}}{\text{number births during survey}}$$

* The period of our survey is 6 months, or 180 days.

Table 1 shows a selected group of hospitals demonstrating varying degrees of overcrowding that exist. Hospitals C and D are of nearly the same size and are located in the same city. Hospital C which has a theoretical maternity stay of 9.1 days considers itself overburdened, although there are other hospitals within the state that are carrying a much heavier maternity load. However, in a competitive sense hospital C has to offer its patients a shorter postpartum stay than hospital D whose theoretical maternity stay is 13.5 days. Hospitals B and F are located in the same city, but hospital F with 15 licensed maternity beds and a theoretical maternity stay of 48.2 days is a municipal institution and so is not used for private patients.

Hospital E, which has a theoretical maternity stay of 14.6 days, has been given a complete federal grant for a maternity building extension. Although this grant was made just prior to the more rigid restrictions on priorities, this hospital was not nearly so overcrowded as were many others in the state. This kind of information should be of value to an agency set up to adjust an equitable distribution of hospital services.

TABLE 1

Theoretical Maternity Stay in Certain Selected Hospitals

Hospital	*Number of Births*	*Hospital Beds*	*Theoretical Maternity Stay*
A	399	20	6.8
B	1,803	91	6.8
C	656	44	9.1
D	672	67	13.5
E	490	53	14.6
F	42	15	48.2

It was interesting to find after computing the theoretical maternity stay for all hospitals that in certain hospitals, where the length of stay before discharging patients was known, the theoretical maternity stays indicated a length of stay *too short* to allow patients to remain as many days postpartum as they were actually remaining. On investigation it was found that *additional* beds were being used for maternity cases.

The average theoretical maternity stay available during the 6 month period for all hospitals in the state was 9.8 days. If we accept a 10–12 day theoretical maternity stay as normal, it would seem that there are nearly ample hospital beds in the state to care for maternity patients at this time. The chief difficulty is in getting the patients to existing facilities.

If we have information on births within a health unit on both a hospital and residence basis, we will be in a position to predict where maternal and child health problems are likely to arise because of increased births. Reference to Table 2 will illustrate this point. Resident births have increased in town M by 52.8 per cent and in town N at

TABLE 2

Theoretical Maternity Stay and Percentage Increase in Resident Births in Selected Towns

Town	Births by Place of Occurrence	Hospital Beds	Theoretical Maternity Stay in Hospitals	Percentage Increase in Resident Births*
M	781	43	7.4 days	52.8
N	389	21	7.3 "	57.4
O	269	22	11.0 "	62.9
P	106	16	20.4 "	42.4
Q	530	38	9.7 "	2.5
R	305	25	11.1 "	2.8

* Increase between January-June, 1940, and January-June, 1942

the rate of 57.4 per cent, and, as might be expected, the theoretical maternity stays of the hospitals within these towns are very low. In towns O and P the birth increases are 62.9 and 42.4 per cent respectively, but there is no apparent overcrowding of the hospitals' maternity facilities as shown by their relatively high theoretical maternity stays, 11.0 and 20.4 days. Still another situation exists in towns Q and R where the increases in resident births are almost nonexistent, 2.5 and 2.8 per cent in the order named, while the theoretical maternity stays are comparatively low. Clearly, if we were informed on either "the increase in births" in a town or the "theoretical maternity stay," but not both, and attempted to predict the other on the basis of the one we know, we might reach an erroneous conclusion.

2. A very useful arrangement of the data will be a cross-tabulation of the births according to the individual health unit where the mother resides and by the hospital where the birth occurred. This tabulation will furnish information on the movement of mothers for delivery, where they went to have their babies, and from what localities they came. In practice, if this tabulation is made, all of the information on births thus far described will be available from this one table.

Having knowledge of mothers who were residents of one town but who were delivered in another, it is possible, with the aid of a road map, to find the distance a mother traveled to be delivered. What type of hospital she went to and what hospital she by-passed can be found by inspection. Table 3 shows the distance traveled by 376 mothers who were delivered in hospitals located in town X but whose residence was nearer to another general hospital.

For example, 14 mothers traveled 20–25 miles to be delivered in town X, whereas the nearest general hospital licensed for maternity patients was 5–10 miles from their residences.

There were 3,013 births occurring in hospitals in town X—1,366 were to mothers who were residents of towns other than town X, and of these 376, or 27.5 per cent, traveled farther to be

TABLE 3

Distance Traveled by Mothers to Be Delivered in Town X Compared to Distance to Nearest Hospital

		Distance to Town X					
Distance to Nearest Hospital	Miles	5–10	10–15	15–20	20–25	25 over	Total
	Less than 5	106	44	50	1	15	216
	5–10	75	2	3	14	15	109
	10–15	..	..	17	3	4	24
	15–20	..	..	9	6	12	27
	Total	181	46	79	24	46	376

delivered in hospitals in town X than if they had gone to their nearest hospital. If the time comes when hospital facilities must be rationed, such information as this will be useful. Also it may be possible to determine from such information the cost of allowing patients to choose their place of delivery.

Information concerning hospital and home deliveries can also be determined. As in other states, the proportion of hospital deliveries has been increasing in Connecticut in recent years. This trend continued in Connecticut during the first 6 months of 1942. In 1940, 90.8; in 1941, 94.0; and for the first 6 months of 1942, 95.8 per cent of the births occurred in hospitals. However, factors such as an increased birth rate and overcrowded hospitals are now rising which may influence this trend. If home deliveries do increase, either in the state as a whole or in some area in the state, it will be advisable to know this so that more attention may be directed toward stimulating home delivery nursing services and enlisting local women's organizations to make obstetrical bundles for physicians' use at home deliveries.

When a hospital's maternity facilities are overtaxed, it will be obliged to limit its admissions to the number for whom safe care can be given. In order to offer care at the time of delivery to as many mothers as possible, the hospital may have to reduce the length of stay of postpartum cases. It is recommended that a public health nurse or other designated worker visit the home of every expectant mother to evaluate the suitability of the home for delivery and for care of the mother after early discharge from the hospital. If such a visit is made by a public health nurse, she can easily guide the mother in making preparations. Either a public health nurse or another designated worker can coöperate with the hospital in its selection of patients for early discharge by reporting her findings of the home conditions. From information on the birth certificate we know which hospitals are overtaxed and which communities could improve their care for mothers and newborn infants by making investigations of the homes.

3. There is a Connecticut statute which became effective July 1, 1941, that requires each physician giving prenatal care to the pregnant woman in the state to take or cause to be taken a blood test for syphilis within 30 days from the date of the first examination, and to state on the birth certificate whether the test has been made and, if made, the date when such test was made and, if not, the reason why such test was not made.

It is possible to determine from information on the birth certificate how the law is being carried out. It was found that 13,540 of the 15,787 cases studied, or 85.8 per cent, answered the question "Was a blood test made?" while the remaining 2,247, or 14.2 per cent, did not answer the question. Of the 13,540 cases reported on, 12,522, or 92.5 per cent, stated that a blood test actually had been made while in the remaining 1,018, or in 7.5 per cent of the cases, it was specifically stated that no blood test was made. The second part of the blood test question asks "date of test?" This question was answered on 10,691, or 85.4 per cent, of the 12,522 records where it was stated a blood test had been given.

This information is of value to those administering venereal disease programs as well as those concerned with maternal and child health problems. Knowledge of the month that the pregnant women received a blood test is important when evaluating the effect of a venereal disease program while the stipulation in the law that the blood test be given within 30 days of the first examination furnishes a valuable index on the time of the mother's first visit for prenatal care. The distribution of the 10,691 cases that

reported on the date of the blood test according to the time during pregnancy that the test was made follows:

Time blood test made	*Number*	*Per cent*
Before fifth month	4,549	42.5
Fifth month to term	5,407	50.6
Same day or after delivery	735	6.9
Total	10,691	100.0

It was interesting to see that the answering of the question on the blood test followed a hospital setup, with certain hospitals reporting nearly completely and others not at all. It is hoped that in the future, in the case of those physicians who have not reported the date of the blood test, a convenient method can be devised of transferring this information from their office records to the hospital records in order that reporting can be complete. We believe this would reduce the number of those not reporting.

4. The birth records may be divided according to the occupation of the father. This information can be used to find an estimate of the number of wives who would be eligible for care under the program for medical care for wives and children of men in military service (except commissioned officers) and to get an estimate of the number of fathers who worked in industries which are predominately engaged in war production. It was found that, for the first 6 months of 1942, out of 15,787 births 272, or 1.7 per cent, were born to wives of service men (except commissioned officers). This figure could be used as a maximum number of wives who might be eligible for care. We were also able to estimate from the data on occupation of father that approximately 50 per cent of the fathers of infants born during this period were engaged in war production industries. In planning for the medical care of these infants through their preschool years some thought should be given to the economic status of families now supported temporarily by war industries.

We are aware of a case where a hospital in the state, admittedly overcrowded, was refused a request for materials to build a new wing because it was felt that other hospitals with similar needs were giving service to a larger proportion of families where the wage earner was engaged in vital war production. As we had sorted the question on occupation of father on a hospital basis we were able to test whether this assumption was correct. We found within reasonable certainty that this hospital was exceeded by only one other in the state in so far as the percentage of births to fathers engaged in war production industries was concerned.

It was felt that the mother's choice of hospital for delivery might be influenced by the location of her husband's place of employment. If this were so, we should expect to find, among those mothers who traveled to be delivered, a larger proportion of the wives whose husbands worked in a town going to that town to be delivered than of the wives whose husbands did not work there. As the code on occupation of the father had also been arranged to identify the names of certain selected industrial plants where the fathers worked, it was possible to test this hypothesis. The records of those births where the father was known to be employed in a certain factory were separated according to whether his wife was delivered in the town where he worked (designated town Z). In order to eliminate the residents of town Z and residents of other towns who would be expected to utilize only those hospitals in town Z, we used only those towns where less than 75 per cent of the cases had been delivered in town Z during the survey period. Eighty-three of the 289 mothers whose husbands worked at the factory in town Z, or 28.7 per cent, came to town Z to be

delivered. Using the same towns as a base, it was found that, of the remaining 1,086 births where the husband did not work at the selected industrial plant, 204, or only 18.8 per cent, came to town Z to be delivered. It would seem that there was evidence to support the opinion that the father's place of employment influenced the mother's choice of hospital. It might be well for the public health nurse to inquire into the mother's motive when it is known that she intends to travel farther than necessary to be delivered, especially when the hospital she plans to attend is in a shortage area.

5. The occupation of the mother was tabulated to learn the extent to which pregnant women were working outside the home. Although our experience led us to believe that the reporting on this item made it unreliable to use, it is felt that the question was not clearly defined. The expectant mother may have worked outside the home prior to and during part of her pregnancy but we have reason to believe that she will report her occupation as "housewife" if asked during the latter part of her pregnancy after she has stopped working. We feel that it would assist the person filling out the birth certificate if the question on the mother's occupation were worded: (a) Employed outside the home during pregnancy Yes .... No ....; (b) If yes, usual occupation .....; (c) Industry or business .....

6. If we know that the population within a health unit is being increased because families are moving in from other areas, we should be interested in finding out if there is any difference between the old and new residents in respect to the factors associated with the births. Since the birth certificate asks the "length of mother's stay in this community" it was possible to separate the births on this basis. It was necessary to limit the analysis to those births where the residence of the mother was the same as the town where she was delivered. This situation existed because the question on "length of stay" is asked under the block headed "Place of Birth." We feel that this question would have more utility if asked under the block headed "Usual Residence of Mother." Although we have information on "length of stay in community" on only 6,705 of the 15,787 births reported, we feel that any errors that the data may contain are not selective to the birth certificates on which has been reported the length of stay in the community.

Table 4 presents the distribution of the 5,328 births on which was reported the month of gestation at which mothers had a prenatal blood test according to the length of stay in community. The mothers who had been residents of a town for 6 months or less did not have a blood test as soon as mothers in the other classifications. It would seem, however, that the new residents adjusted themselves very quickly to the standard of the older residents in the matter of seeking early prenatal care.

TABLE 4

Time of Blood Test by Length of Mother's Stay in Community

Length of Mother's Stay	*Total Reporting*	*Before 5th Month*		*5th Month to Term*		*Same Day or After Delivery*		*No Test Taken*	
	No.	*No.*	*%*	*No.*	*%*	*No.*	*%*	*No.*	*%*
Under 6 months	244	53	21.7	144	59.0	30	12.3	17	7.0
6–11 months	333	131	39.4	157	47.1	18	5.4	27	8.1
12–23 months	428	175	40.9	196	45.8	27	6.3	30	7.0
24–35 months	236	104	44.0	109	46.2	11	4.7	12	5.1
36 months and over	4,087	1,625	39.9	1,895	46.3	209	5.1	358	8.8
Total	5,328	2,088	39.2	2,501	46.9	295	5.5	444	8.3

Table 5 shows the distribution of 6,674 births on which was reported the order of birth according to the length of the mother's stay in the community. It is apparent that a trend exists toward smaller families in the newer population groups especially in the proportion of mothers having their first baby. It is not certain whether this smaller percentage of first births (births of order I) to residents of less than 6 months reflects a real change. It may be, since these women were pregnant when they moved, that the primiparae were reluctant to leave their old homes before their babies were born.

In addition to the items mentioned above, it is possible to separate the births according to any other information contained on the birth certificate. The factors of age of mother, age of father, legitimacy, past mortality experience of the mother and prematurity are tabulated annually by the Bureau of Vital Statistics but may have added value in the planning of a maternal and child health program if the information is available on a current basis.

The birth certificate furnishes, moreover, a valuable means of locating and selecting cases that need special attention. The value which the birth record may have in selecting individuals for direct service depends upon the speed with which the information can be made available to the medical and nursing field staffs. States like Connecticut which receive in the State Bureau of Vital Statistics copies of birth certificates from the local registrars are not in a position to refer cases into the field soon enough to be immediately effective. However, many of our larger cities, as well as health units in many other states where the registrar receives the birth certificate directly, can work out a system which will best serve their own needs according to the facilities which are available. New York City, which has been a pioneer in the use of the birth certificate for case finding in the maternal and child health program, now requires the physician to file a birth certificate within 48 hours after the birth.

TABLE 5

Order of Births according to Length of Mother's Stay in Community

Length of Mother's Stay	*Total Reporting*	*Births of Order I*		*Births of Order II*		*Births of Order III and Over*	
	No.	*No.*	*%*	*No.*	*%*	*No.*	*%*
Under 6 months	302	170	56.4	70	23.2	62	20.5
6–11 months	403	276	68.5	72	17.9	55	13.6
12–23 months	551	351	63.7	100	18.2	100	18.2
24–35 months	306	159	51.9	87	28.4	60	19.6
36 months and over	5,112	2,302	45.0	1,463	28.6	1,347	26.4
Total	6,674	3,258	48.8	1,792	26.9	1,624	24.3

SUMMARY

In practice the director of maternal and child health would ask the director of vital statistics for guidance in determining what information from the birth certificate could be made available and the form in which it will be most useful. In some vital statistics divisions, it may be a practice to code and punch the information from birth certificates after the end of the registration year rather than currently. In this case it will be possible to secure only a minimum amount of information, but even this will be worth while to the division of maternal and child hygiene. There may be additional items which appear on the birth certificate which formerly were not tabulated, but may be of value,

and now the use of them justifies the past decision to include them on the birth certificate.

The pattern of life in all sections of the country is being disturbed during this wartime period. Redistribution of families with children, overcrowding of housing units, wives and infants of soldiers, and working mothers bring new health problems at a time when public health personnel is needed for work connected with the war. Information which will locate these sore spots is available on the birth certificate. To be of value it needs to be used currently.

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TRENDS AND FORCES IN PUBLIC HEALTH ADMINISTRATION

NO sensible person would undertake to prophesy the extent and character of public health work during the next ten years. The situation contains too many variables and intangibles to permit a detailed forecast. It seems fairly safe, however, and possibly may be of benefit, to review those factors and pressures which have shaped public health practice in the past. Then, on the assumption that they will continue, one may attempt to guess how they will influence and be influenced by existing and future pressures.

Viewing the past, one must be impressed by the fact that, broadly speaking, two influences have tended to determine the amount and kind of public health work done by the health departments. The first of these has been the extent of scientific knowledge available; and the second, social concepts as manifested in government. The way in which these forces have operated has not been simple, but rather the contrary. For instance, whether in the past or future, mere possession of knowledge as to control of a given disease is not enough. Such knowledge remains only of academic interest unless it can be applied. Its application, in turn, may be inhibited by excessive costs, by diffuseness of the problem to be met, by the fact that control measures would entail restrictions of daily living, or a meticulousness in personal conduct that human beings will not observe. Again, the public health methods available for application of scientific knowledge may be quite clumsy, or the public or officials of government or the medical profession may not be receptive to its application under governmental auspices.

Always these factors have acted and reacted upon one another in any attempt to apply scientific knowledge. The result is that as newer knowledge became available it was applied more here and less there, but nowhere in full force; and although there was always a net gain to the public health, accomplishments fell far short of what was possible.

The rôle of the second element mentioned above, that is, current social philosophy, and its influence on the amount and kind of public health work done, was and is exceedingly complex. It is also very important, for the structure and function of a health department, the type of its administration, and the scope of its health program, must inevitably fluctuate within the framework of the government of which it forms a part. Further, these health activities were and will currently be shaped by the policies of the government's chief executive and cabinet, by its legislative body, to some extent by its courts, and by its economic resources. This applies in all governmental spheres: federal, state, and local. Behind the governments, of course, is public opinion which, though sometimes slow and fumbling, always and inevitably makes itself felt. In relation to health work, public opinion was sometimes crystallized and produced voluntary health organizations long before the influence of this opinion brought action through governmental authorities.

Because government and its contained social philosophy influences health work, it is important to note that all levels of government in the United States are undergoing change. Of significance in this connection is the fact that larger governmental units are becoming more articulate and forceful in imposing benefits and policies upon smaller ones. Federal tends to press upon state and state upon local. This is made effective and painless by the use of subsidies from above downward. Billions of dollars, and even millions, are deep-voiced and persuasive. Another significant change is that federal government is tending strongly toward social legislation containing provisions as to health and medical care.

Summarizing the trend in these principal forces which shape the work of health departments, it may be said that in the field of scientific knowledge, upon which public health work must rest, one finds a broader base than ever before existed, with the promise of much more to come in the near future. Sociologically, one finds a federal government strongly inclined toward legislation and appropriations for social betterment, with an increasing tendency to raise the ceiling on benefits the citizen has a right to expect of government, and somewhat strong-armed as regards *meum et tuum* in federal-state relationships.

It seems inevitable that out of these broadening resources and strong tendencies, unless there is a post-war relapse into rugged individualism, the pattern of public health practice will be shaped more than ever before by federal agencies, that better standards of work and a greater uniformity of procedure will come into play, that more funds will be available, that there will be higher qualifications for public health personnel, with civil service tenure of office which will protect alike the just and the unjust and those who are good and those who are not so good. It seems likely, too, that there will be a lessened sharpness in the dividing line between preventive and curative medicine, that much of medical care will become a function of public health service, that public health organizations will, by nature and resources, be better prepared to apply new knowledge as it becomes available.

Some of those engaged in public health work would welcome these things, including their derivations and implications, with shouts of glee. Others will wonder if the surrender of considerable local initiative will not, in the end, be too high a price to pay. In any event, it seems reasonable to believe that modern public health service will be extended to the uttermost rural hamlet and township, and perhaps even to a few of those cities now sitting upon their ancient and somewhat withered public health laurels.

ARE COUNCIL AND BOARD MEMBERS PEOPLE?

PARENTS appear to be divided into two classes. First, there are those who hope, naively, to carry their youngsters through adolescence without experiencing mental anxiety for, and clashes of will with, their children. Second, there are those who have tried to do this and know it cannot be done.

Parents who expect to avoid disobedience and sowing of wild oats on the part of their children, seem to forget that they themselves, if they are now bearable and effective personalities, gave their parents some disquiet. They overlook, too, the fact that if there is to be no disobedience, no resentment of authority, no venturing into new and perhaps dangerous fields, the new generation would be but a replica of the old. It would be disastrous if this should happen in any large proportion of the young people. For one thing, it would seriously retard progress of race and civilization, for older people and their prototypes tend to develop too great an esteem for precedent, to resent the threat of change. Further, new horizons would remain unexplored, for the old mind is not curious as to what is beyond the hill, provided it is not the poorhouse. What is needed is the commando type who will not only go over the hill, but will acquire the poorhouse and either burn it down or turn it into a night club.

As with parents and families, so it is with business, industries, organizations, and associations. Chronic chairmen, perennial board members, and ubiquitous committeemen tend to assume a parental rôle in organizations and, just as parents cannot concede that a new generation has arisen, so these elder statesmen insist that policies of the past must shape current and future procedures.

It is at least permissible to wonder if these things might not well be taken to heart in professional organizations, such as the American Public Health Association. The Editor has a feeling that old names and old faces, including his own, have too long occupied strategic positions on boards and committees; that not enough thought has been given to the necessity of harvesting the presently maturing crop of epidemiologists, administrators, nurses, engineers, laboratory workers, etc., etc. When we, as a Fellow of the Association, attend a committee meeting, we have a pleasant assurance that we shall meet old friends. At the same time, we experience a dull distress because we know that we shall not find new, or even foolish, enthusiasms, or venturesomeness, and youthful vigor.

If someone wants to campaign for a candidate under forty for the Governing Council, the Executive Board, or Editorship of the JOURNAL, we shall joyously back his man (unless he has served a prison term of more than a year *) against the fifty-and-over field.

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* Make it two years.

BOOKS AND REPORTS

Victories of Army Medicine: Scientific Accomplishments of the Medical Department of the United States Army—*By Edgar Erskine Hume. Philadelphia: Lippincott,* 1943. Price $3.00. 250 pp.

The Medical Department of the United States must be credited with many notable achievements. Three immediately occur to anyone who knows anything of medical history: the experiments by Beaumont on Alexis St. Martin; the conquest of yellow fever by the committee of which Walter Reed was chairman; and the Army Medical Library with its *Index Catalog* for the great development of which we are indebted to the late John S. Billings. Of these, Dr. William H. Welch regarded the last as "America's greatest gift to medicine." The conquest of yellow fever is rightly considered one of the most beneficent gifts to mankind, and the work of Beaumont was the first really scientific study of digestion, on which life depends.

Not only does Colonel Hume give the record of the U. S. Army, but also some of the history of the Medical Department of the Confederate Army during the Civil War. When the South seceded 3 surgeons and 23 assistant surgeons gave up their commissions in the U. S. Army and went to the defense of their Confederacy. The history of the Confederate Army remains to be written, and the records of the Surgeon General's office were burned at the fall of Richmond, but Colonel Hume mentions several notable achievements. The Confederacy founded and conducted the Chimborazo Hospital at Richmond, Va., which with its 9,000 beds, became the largest military hospital that has ever existed in America. It was in the charge of Surgeon James B. McCaw, father of General Walter D. McCaw, Chief Surgeon of the A.E.F. in the World War. A notable accomplishment also was the book by Dr. Francis Peyre Porcher who was a skilled bontanist as well as a physician. The book, *Resources of the Southern Fields and Forests,* was written in order to supply the medical deficiencies of the Southern Army since medicines were contraband of war. The Surgeon General of the Confederate Army founded also the Association of Army and Navy Surgeons, the oldest American military association of the country, since the present Association of Military Surgeons was founded only in 1891.

Once again Colonel Hume has put the medical profession of the country in his debt, and has done a notable service in writing this memorial to the great men who have served in our armies. Like all of Colonel Hume's writings, the book is filled with facts of the most interesting character, which any reviewer finds it hard to pass without mention. The book is entirely up to date, including the most recent additions to our medical outfit, such as dentistry, nursing, and veterinary medicine. Aviation medicine and warfare gases are considered. Accounts of the many medical boards are also given, and short sketches of a number of the chiefs of other branches of the Army than the medical are also included. There is a list of all the chiefs of the medical department of the U. S. Army, beginning in 1775 and going to 1939; of the librarians of the great library, the curators of the Army Medical Museum, General Hospitals created before 1940, and those since. There are com-

plete references to the subjects considered. Altogether the book is most valuable and interesting.

It is but natural that Colonel Hume should wish to give all possible credit to the Army, but we must take exception to his attributing to General Sternberg the discovery of the pneumococcus (page 187). There is no doubt that he saw it but so did Pasteur the same year, though neither suspected its relation to pneumonia. Acting Assistant Surgeon Aristides Agramonte, who was a member of the Yellow Fever Board, is said to have been Professor at the University of Havana until his death. This may be correct, but he was also at the time of his death Professor of Tropical Medicine at Louisiana State University. The library of the Medical School of the institution is named " The Agramonte Memorial Library."

The book is beautifully printed and profusely illustrated. One color plate shows Colonel J. S. Billings in uniform, over which is the gown of Doctor of Civil Laws of Oxford University. Reproductions of many title pages of notable publications abound. It is a " must " book for all medical libraries and contains information which educated people generally should have.

MAZŸCK P. RAVENEL

Sanitary Inspector's Manual—*By Ben Freedman. New Orleans: Louisiana State Department of Health,* 1943. 360 pp.

In this manual an effort has been made to bring together information useful to the Louisiana sanitarian. It is put together in such a way as to be adaptable to field use, has numerous illustrations and a good index. Generous quotations are made from standard documents to avoid repetition. The entire environmental sanitation field is covered with due respect, of course, to the laws and regulations of the state in which the manual is to be used. This manual should be popular with Louisiana sanitarians for it contains the material for use in formulating answers to most of the problems such workers will face. To be most useful, however, this manual will have to be kept abreast of the times. ARTHUR P. MILLER

Synopsis of Diseases of the Skin—*By Richard L. Sutton, M.D., and Richard L. Sutton, Jr., M.D. St. Louis: Mosby,* 1942. 413 ill., 481 pp. Price, $5.50.

The authors have succeeded admirably in their objective, which is to present in compact form a general view of skin diseases. It is obvious that effort has been made to eliminate unnecessary discussion in the interest of simplicity and practicality.

The section on syphilis discusses in a few lines massive dose arsenotherapy in early syphilis. This important subject, which has been hailed as the greatest advance in the treatment of syphilis since the discovery of salvarsan, deserves more space, especially since massive dose therapy is being adopted in many centers in this country, as well as abroad. It is regretted that the word *metarsen* is employed as a synonym for mapharsen. The original non-proprietary designation for this compound was arsenoxide; more recently, and particularly since other manufacturers in this country are preparing it, the term phenarsine oxide hyprochloride has been adopted. The introduction of this strange new term (unknown even to the manufacturing concern which makes mapharsen) will only serve to confuse the reader.

The inclusion of excerpts from original contributions, for example, Shelmire on plant dermatitis, Cole on cardiovascular syphilis, O'Leary on neurosyphilis, and Moore on syphilitic optic atrophy, enhances the value and authority of the volume.

Public health workers may find that

the section on leprosy gives too optimistic a picture of the effects of chaulmoogra oil. McCoy recently stated: "My own observations have led me to the conclusion that the oil and its derivatives are of little or no curative value, and that the unpleasant side effects probably outweigh any advantage to the patient that might possibly accrue from their use."

This book is highly recommended as an up-to-date comprehensive presentation of cutaneous diseases. The reader is constantly amazed at the mass of information contained in a text of 481 pages. Of this volume it may truly be said "multum in parvo."

THEODORE ROSENTHAL

The National Nutrition—*By Morris Fishbein, M.D. Indianapolis: Bobbs-Merrill,* 1942. 192 pp. Price, $1.75.

This little book is presumably addressed to laymen as it includes material previously published in *The Saturday Evening Post, Red Book Magazine* and *Hygeia.* It seems well suited to the purpose, as it is readable, even amusing in parts, and more than reasonably accurate. The author touches very briefly on many difficult subjects. His object seems to be to draw attention to significant facts which illustrate a moral, rather than to cover the subject, and with this in the case of such a book, one can find no fault. However, it is not in any sense the type of book which seeks to present a particular point of view. The intelligent layman who reads it will be interested, amused, and moderately instructed.

FRANK G. BOUDREAU

China's Health Problems—*By Szeming Sze. Chinese Medical Association, Washington, D. C.,* 1943. 60 pp.

This is the second edition of a volume first published in May, 1942, which sets forth in succinct form an up-to-date review of China's health problems, including sections on health education, medical education, state medicine, civilian medical relief, the Army medical services, and other subjects. An excellent appendix gives briefly the present status of governmental and voluntary health agencies in China. The author, who is General Secretary of the Chinese Medical Association and Editor of the *Chinese Medical Journal,* is now in the United States.

REGINALD M. ATWATER

Serology in Syhilis Control: *Principles in Sensitivity and Specificity—By Reuben L. Kahn, M.S., B.Sc. Baltimore: Williams & Wilkins,* 1942. 206 pp. Price, $3.00.

The importance of this monograph is well bespoken by a single figure: the 16,520,591 serological tests for syphilis performed in this country in 1941. The author has essayed to discuss the implications of variations in serologic specificity and sensitivity to the problem of syphilis control. He has neatly avoided the usual pitfall of the serologist: the tendency to enlarge upon the fascinating details of technic, and has so kept his text within the scope of most of us. The discussions of sensitivity, specificity, supersensitive tests, quantitative serologic reactions, the side effects of mass blood testing programs in the general population and in industry are worth the time of every health officer and venereal disease control officer. A series of papers presented by industrial physicians and venereal disease control officers at a conference called by the author to discuss his verification test are of less importance but are not without interest.

The central thesis of this essay is the importance of specificity in a serological test. When the vast number of routine examinations of serum are considered the number of people affected by a fluctuation of only 1 per cent in the

specificity of a serologic test is rather startling. The 99 per cent specificity which has been considered satisfactory and which seems admirable in comparison with other diagnostic tests may be too loose a criterion.

The plaguing possibility that we diagnose and treat as syphilitic a group of persons whose sera react as do syphilitic sera, but who are not actually infected with the disease, is raised again by the author's discussion. Perhaps we should not assume that every person with a definitely positive serologic reaction has syphilis because almost every syphilitic has a positive serologic reaction. The author seems to proffer his interesting verification test as a partial solution to the problem of detection of biologic false positive reactions. But the interpretation of this test is based upon another assumption: that the reaction which may be detected in the normal sera of various animals is due to the same factor which makes for the false positive reaction in human sera. It would have been interesting to hear more of the proportion of presumably false positive reactions in which the verification test was of assistance in interpretation. But since this test is not susceptible to routine application because of the time and special skill required for its performance, we must continue to regard a definitely positive reaction of a standard test, confirmed by a second examination as sufficient evidence for a diagnosis of syphilis when other diseases tending to produce serologic reactions can be ruled out.

The author reiterates the now familiar plea for a standardization of the sensitivity level of sero-diagnostic tests. It is suggested that such a measure need not, as is often maintained, inhibit the development of new serologic tests or prevent the improvement of those we now have, for the performance of experimental tests which need not be reported could certainly continue. Indeed, a standardized test could be a criterion of the newer tests. No solution to the major obstacle to such a standardization is suggested: the loss in sensitivity which would result in some laboratories from fixation of the sensitivity level at the average of the least sensitive test considered acceptable.

Serology in Syphilis Control is not a reference text but a thoughtful "Quo Vadis" which is well worth the attention of health officers, laboratory directors, and venereal disease control officers.

JAMES H. LADE

Practical Survey of Chemistry and Metabolism of the Skin—*By Morris Markowitz. Philadelphia: Blakiston,* 1942. 196 pp. Price, $3.50.

The book is divided into four parts. The first part goes into the chemistry of the skin itself, giving information not usually found in textbooks on dermatology. Abstracts from the writings on the subject are given and the diseases in which there are deficiencies or excesses of each of the chemical constituents of the skin are named.

The second part of the book deals with hematology and gives the blood abnormalities associated with or diagnostic of various skin diseases.

The third part is on blood chemistry and gives the diseases in which there are changes in the blood nitrogen, blood cholesterol. A special chapter is devoted to histamine and its relation to allergic dermatoses. The chapter devoted to photosensitization and porphyrins is of especial interest.

The fourth part describes the vitamins and gives the diseases in which there is a deficiency of the various vitamins and the skin diseases in which their administration is indicated. It also lists the diseases which may be caused by the excessive intake of some of the vitamins.

Abstracts of the literature make up most of the book. Since many of the

quoted statements in the book are unsubstantiated, it would have been desirable to have the author express his own views on the matter.

An extensive bibliography is appended to each chapter.

LOUIS SCHWARTZ

A Family of Thirty Million—*By L. I. Dublin, Ph.D. New York: Metropolitan Life Insurance Company,* 1943. 496 pp.

Thirty million policy holders of the Metropolitan own nearly $27,000,000,000 of life insurance. And there is probably no person in the United States who does not enjoy some measure of its protection. What began as a small business in the turbid days following the Civil War has grown to be an American institution. During its early struggles the company seized the opportunity of underwriting the insurance of a sizable society of working people and this experience opened for it the unexplored field of industrial insurance. Concern for the wage earner led to an intelligent desire to better his social conditions. Later, the "ordinary" business was revitalized, largely by bringing 800 field agents and their families to this country from England, but that did not divert the company from its course of studying and meeting the needs of the common man.

A fortuitous meeting of Haley Fiske, President, and Lee K. Frankel, marked the beginning of its systematized welfare program and another happy contact of Dr. Frankel with Lillian D. Wald led to the company's interest in public health nursing. Steadily the welfare program advanced; benevolence and business prospered side by side.

JOURNAL readers familiar with the company's generous participation in public health enterprises will appreciate not only the compact description of the welfare services but also the clear exposition of the principles of life insurance, its business and social implications, and the brief sketches (and excellent portraits) of the guiding spirits. If the tone is at times a bit laudatory this is compensated by the wealth of statistical and factual data. The book memorializes the company's 75th anniversary; its appearance at this time, when understanding of social security is so essential, is most opportune.

H. E. KLEINSCHMIDT

The March of Medicine. *The New York Academy of Medicine Lectures to the Laity, 1942. New York: Columbia University Press,* 1943. 217 pp. Price, $2.50.

The only excuse I have for writing this review is that I was asked to do it, and that since the lectures were given for the laity, presumably a layman will be able to interpret them for the laity.

Three of the lectures are on well known topics: Tuberculosis, By James Alexander Miller; The History of the B-Vitamins, by Norman Jolliffe; and The Newer Knowledge of Nutrition, by A. J. Carlson. The other three are more abstruse: The Brain and the Mind, by Tracy Jackson Putnam, which is delightful; The Freudian Epoch, by A. A. Brill, which is very informative; and Genius, Giftedness, and Growth, by Arnold Gesell, which goes into flights well above the mentality of the average reader.

There are many statements in each of these lectures which the reviewer would like to comment upon and bring to our readers, but from the standpoint of practicability and interest, we must devote most of our attention to the lecture by Dr. Carlson, which is a criticism of the vast amount of guff which is being poured out to the public through every agency that can be conceived of. Dr. Carlson brings to his subject an exact knowledge, a love of truth, and a devastating wit. He spares no one in his criticisms, which are in every case

authoritatively documented. Concerning the vitamin craze, he quotes from R. R. Williams and R. J. Williams, both of whom, in spite of their excellent work, have made statements and drawn conclusions which border on the chimerical. To go higher up—at least officially—he touches up Mr. McNutt and Surgeon General Thomas Parran, both of whom have made wild statements which do not seem to be supported by facts. Mr. McNutt makes one statement "with the usual lay testimonials which from any other layman would be labeled quackery"; namely, that a trucking company had reduced its night accident rate by giving each driver a bag of carrots before each trip. Most of the statements by Dr. Parran and Mr. McNutt seem to be based upon a series of surveys conducted by the Bureau of Home Economics of the Department of Agriculture assisted by the Department of Labor. They covered only 4,000 urban and 2,000 rural families. The field investigators, some on WPA, depended entirely on the statements of the people questioned. There was no physical or medical examination, determination of body weights, but on the basis of this report the country has rung with statements that at least a third of our population is deficient in nutrition—a statement not borne out by many known facts. Then we have the report of the Subcommittee on Medical Nutrition of the National Research Council which seems to contradict itself, in spite of its imposing origin.

One must read this paper to appreciate its value as well as its keenness. It seems a fashion, led by some in high places as mentioned, to paint the picture as black as possible. In his concluding plea for greater scientific understanding as to human food needs for optimum health, Dr. Carlson demands that we "cleanse our present food and nutrition science of all fads, of all commercial and political propaganda; and move it from the ivory tower down to comprehension and appreciation of the common man."

We wish that Dr. Carlson's paper could have a very much wider circulation than this volume will give it. We surely need something to counteract the deluge of radio and other stuff concerning the vitamins from which we are suffering, and it is evident that this information should be given to many who occupy high places, both official and educational.

MAZŸCK P. RAVENEL

Essentials of Industrial Health—*By C. O. Sappington, M.D., Dr.P.H. Philadelphia: Lippincott,* 1943. 626 pp. Price, $6.50.

This book according to the author represents the application of preventive medicine and public health to industry following closely a recently proposed course for the undergraduate medical student. A wide range of topics is covered in three parts carrying the following titles: Industrial Health Administration, Industrial Hygiene and Toxicology, and Industrial Medicine and Traumatic Surgery. The opening chapter discusses the origin and later development of industrial health throughout the world, and serves to give the reader a fairly complete historical account of the development of this important phase of preventive medicine and hygiene.

In discussing occupational morbidity and mortality in Chapter 2 the author stresses the fact that since true occupational disabilities are a very small part of the whole burden of sickness, the major problem of lost time in industry lies in factors which produce disability common to the general population and outside of industry.

Chapter 3 discusses the distribution of industrial health services beginning with definitions of the scope and objectives of industrial health and includ-

ing estimates of the costs of industrial health service, and the economic and other benefits to be derived therefrom. Reasons why management should be interested in the health of the workers are well stated.

Chapter 4 classifies industrial physicians according to the amount of time spent in rendering services to industrial establishments.

In Chapter 5, which discusses the medical department, it is evident that the author has had the opportunity of obtaining information at first hand. Various aspects regarding quarters are well presented and illustrated with good photographs. In general, the facilities shown are the ideal rather than the average. Little mention is made of "retooling" obsolete medical facilities. Much attention is given to physical examinations of workers. There is a separate section on the special health problems of small plants.

Part II begins with a chapter on industrial health exposures. Included are a series of classifications of dusts, vapors, gases, and skin irritants. Postural strains are briefly treated. More than half of the chapter is devoted to a reproduction of the section in U. S. Division of Labor Standards *Bulletin No. 41* entitled, List of Hazards, Symptoms, Occupations Exposed and Methods of Prevention; the section Alphabetical List of Hazardous Occupations, is not reproduced. Reference is made to safe concentration codes.

In Chapters 7 and 8 the author gives the present-day methods employed in making an industrial hygiene survey of a plant, and the technics involved in determining occupational exposures to hazardous materials and conditions in the working environment. Although it is obviously impossible in a book of this scope to present all the necessary technical details, the author does give sufficient information and references so that the reader will be at least apprised of the type of work involved in the plant survey and in the matter of plant sanitation and hygiene.

Under personal hygiene for workers is included information regarding toilets and washrooms, fatigue control, nutrition, housing, recreation, and mental hygiene.

In Chapter 10 the author indicates that the industrial physician is in reality the public health officer in industry and therefore should coöperate with all the official health agencies in his community. Subjects presented include the control of tuberculosis, venereal diseases, communicable diseases, and industrial wastes. There is also a brief discussion of health and safety codes and regulations.

Chapter 11 deals with the worker and the job. From the viewpoint of the worker, consideration is given physical and mental fitness, aptitude and psychologic tests, medicine and personnel relations, and women in industry. Under job requirements is included a discussion of length of work week, hours of work, rest pauses, and environmental factors.

One chapter each is devoted to industrial accidents, occupational diseases and non-occupational disabilities. Statistics are given which indicate the extent of some of these problems. The discussion covers broad aspects of morbidity with little attention to clinical features.

The final chapter treats workmen's compensation and rehabilitation under the three sub-headings of administrative methods, medical relations and regulations, and insurance practice.

There are extensive appendices, a list of references, an index of proper names, and a subject index.

J. G. TOWNSEND

The Health Status of N. Y. A. Youth—A Nation-wide Survey of Youth on the Out-of-School Work

Programs of the National Youth Administration. *Federal Security Agency, U. S. Gov. Ptg. Office,* Washington, D. C., 1943. 77 pp.

This report confirms the findings of previous studies of physical fitness of American youth. It is based upon 146,567 complete physical examinations of 71,096 males and 75,471 females between the ages of 16 and 24 years. These young men and women were employed, or seeking employment, on out-of-school work projects of the National Youth Administration. The report states that "the examinations of the present study included classification of each youth on the basis of employability as determined by health status. The classifying was done by the examining physician according to agreed standards." (p. 31)

The most frequent defect was untreated dental caries, 84 out of every 100 examined needing attention. About 19 per cent of the youth examined needed correction of eye defects and tonsillectomies.

This exhaustive study concludes that nine-tenths of the low income group of youths examined needed medical and dental care and that one-third of them were unfit for certain kinds of productive work on account of health defects.

RICHARD A. BOLT

BOOKS RECEIVED

ALLERGY. By Erich Urbach. New York: Grune & Stratton, 1943. 1100 pp. Price $12.00.

THE PRINCIPLES AND PRACTICE OF INDUSTRIAL MEDICINE. Fred J. Wampler, Editor. Baltimore: Williams & Wilkins, 1943. 579 pp. Price, $6.00.

THE MODERN TREATMENT OF SYPHILIS. By Joseph Earle Moore. 2nd ed., 2nd ptg. Springfield: Thomas, 1943. 717 pp. Price, $7.00.

ESSAYS IN BIOLOGY: IN HONOR OF HERBERT M. EVANS. Berkeley: University of California Press, 1943. 684 pp. Price, $10.00.

MICROMERITICS: THE TECHNOLOGY OF FINE PARTICLES. By J. M. Dallavalle. New York: Pitman, 1943. 428 pp. Price, $8.50.

THESE MYSTERIOUS RAYS. By Alan L. Hart. New York: Harper, 1943. 218 pp. Price, $2.75.

RELAXATION. By Josephine L. Rathbone. New York: Teachers College, 1943. 157 pp. Price, $1.75.

NUTRITION AND PHYSICAL FITNESS. By L. Jean Bogert. 4th ed. Philadelphia: Saunders, 1943. 500 pp. Price, $3.00.

THE BOY SEX OFFENDER AND HIS LATER CAREER. By Lewis J. Doshay. New York: Grune & Stratton, 1943. 206 pp. Price, $3.50.

HOSPITAL DISCHARGE STUDY. Vol. Two. By Neva R. Deardorff and Marta Fraenkel. Welfare Council of New York City, 1943. 349 pp.

COLLECTED REPRINTS OF THE GRANTEES OF THE NATIONAL FOUNDATION FOR INFANTILE PARALYSIS, 1942. Vol. III. New York: National Foundation for Infantile Paralysis, 1943. 978 pp.

PLANNING FOR MARRIAGE. By William H. Morgan and Mildred I. Morgan. New York: Association Press, 1943. 85 pp. Price, $.50.

CHINA'S HEALTH PROBLEMS. By Szeming Sze. Chinese Medical Association, Washington, D. C. 1943. 60 pp.

HANDBOOK OF TROPICAL MEDICINE. By Alfred C. Reed and J. C. Geiger. California: Stanford University Press, 1943. 188 pp. Price, $1.50.

THE EPIDEMIOLOGY OF DIPHTHERIA DURING THE LAST FORTY YEARS. By W. T. Russell. London: His Majesty's Stationery Office, 1943. 52 pp. Price, $.50.

CHILD DEVELOPMENT. By Marian E. Breckenridge and E. Lee Vincent. Philadelphia: Saunders, 1943. 592 pp. Price, $3.00.

DRYING AND DEHYDRATION OF FOODS. By H. W. Von Loesecke. New York: Reinhold, 1943. 302 pp. Price, $4.25.

REHABILITATION OF THE TUBERCULOUS. By H. A. Pattison. Livingston, N. Y.: The Livingston Press, 1942. 186 pp. Price, $2.50.

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON, PH.D.

Have You Given Your Life-Saving Plasma?—From five to nine times as many wounded men are being saved in this war as in the last. Plasma, surgery, and sulfonamides—in that order—are the great lifesavers. Shout this from the housetops: and practise what you preach in the matter of blood donations.

ANON. The Decreased Death Rate in the Army from Wounds. Science. 97, 2529:10 (June 18), 1943.

Utopia, Inc.—Briefly presented are the main features of the "Americanized Beveridge plan" which propose to increase present social security coverage in old age and survivor's insurance benefits, disability payments, unemployment insurance, maternity benefits, and medical and hospital services, for 15 million more workers, their wives and children.

ANON. The Wagner-Murray-Dingell Social Security Plan. J.A.M.A. 122, 9:609 (June 26), 1943.

Chest X-rays Plus Allowances—Despite wartime difficulties the British Ministry of Health proposes to intensify tuberculosis prevention by extending mass miniature radiography and by granting allowances to persons undergoing treatment. Isn't it about time that we, in this wealthy country, also consider the second feature as a means of getting people to undergo care while there is still hope of successful treatment?

ANON. The Anti-Tuberculosis Campaign. J. Roy. Inst. Pub. Health & Hyg. 6, 6:131 (June), 1943.

Gonorrhea Is Still Much Too Prevalent—Last words in the fields of gonorrhea prophylaxis, diagnosis, treatment, control of patients, criteria of cure, and case finding by a distinguished committee.

ANON. The Management of Gonorrhea in General Practice. Ven. Dis. Inform. 24, 5:127 (May), 1943.

Hard Workers Please Note—Medical students voluntarily subsisting upon a diet chiefly deficient in the vitamin B complex (but on a diet such as a third of all Americans subsist on) developed irritability, easy fatigability, lack of pep, anorexia and increased leg pain during work periods, but at no time did they develop objective physical signs of B deficiency. All the changes returned to normal when a yeast concentrate was added to the diet.

BARBORKA, C. J., *et al.* Relationship between Vitamin B Complex Intake and Work Output in Trained Subjects. J.A.M.A. 122, 11:717 (July 10), 1943.

More Comfort for Confinees—Another of the several recent articles on continuous caudal anesthesia is called to your attention chiefly to remind you that many researchers are engaged in perfecting the method. Already more than a thousand births have been reported—the very great majority with relief to the mother, and all without effect upon the baby. Begins to look like the real article.

BLOCK, N., and ROTSTEIN, M. Continuous Drip Caudal Anesthesia in Obstetrics. J.A.M.A. 122, 9:582 (June 26), 1943.

Neglected Schick Test—Only a quarter of the previously immunized children were still Schick-positive by the time they reached a hospital for contagious diseases. (They were ad-

mitted for other conditions than diphtheria.) Of 88 children admitted with diphtheria, a third had been immunized but not checked previously. Schick tests should be done after routine immunizations, reasonably concludes the writer.

BULLOWA, J. G. M., and SCANNEL, M. The Efficiency of Inadequate-Antidiphtheria Immunization. J.A.M.A. 122, 9:595 (June 26), 1943.

In Preparation for Polio—During 1942 the incidence of poliomyelitis was relatively low. The states reporting largest numbers of cases were Illinois, New York, California, New Jersey, and Texas. Commenting upon the epidemiologic aspects of the disease, the writer deems it remarkable that, for all the time and effort spent upon the disease, so little new information has been produced. One can improve very little upon Frost's epidemiological discussion published in 1913, he points out.

DAUER, C. C. Poliomyelitis in the United States in 1942 and a Summary of Its Prevalence from 1933 to 1942 Inclusive. Pub. Health Rep. 58, 25:937 (June 18), 1943.

Publican Ideas of Sanitation—Health officers who have in their own communities taverns in which beer is dispensed in improperly sanitated glasses will read with feeling the trials of the British health officer (of Leicester) who found 55 instances in 273 "pubs"—of beer glasses being rinsed in cold water, *or in no water at all.* Several publicans were letting the "swipes" (overflow from glasses) drain back into the barrel.

MACDONALD, E. K., and YATES, J. Notes on Some Matters Connected with Beer Drinking. Pub. Health. 56, 9:106 (June), 1943.

Paper-of-the-Month — Inspiring report upon the United Nations' Conference on Food and Agriculture by one who took part in the deliberations: this state paper is on your "must" reading list, so you'll find no nubbin of news here to help you guess what it's all about.

PARRAN, T. A Blueprint for the Conquest of Hunger. Pub. Health Rep. 58, 24:893 (June 11), 1943.

Practical Venereal Disease Control—Three dozen centers where venereally infected patients are given modern, intensified treatment, something useful to do, and an allowance for doing it: that, it would seem, is a prodigious step forward in stopping the spread of syphilis and gonorrhea. (Incidentally forty-one centers are "contemplated.")

PEARCE, D. Rapid Treatment Centers. Am. J. Nurs. 43, 7:658 (July), 1943.

Promise of Things To Come—Both bacteria and viruses apparently remain suspended in the air for considerable periods of time and in a viable state. Promising methods for the control of air-borne infections are being studied in an army hospital by a special commission on cross-infections.

ROBERTSON, O. H. Air-Borne Infections. Science. 97, 2527:495 (June 4), 1943.

Every Tumor Is an Induced Tumor—This scholarly discussion of the causes of cancer, especially the viruses, is not easy reading but you will be well repaid for your effort even though you probably will not know the exact meaning of half the technical terms (which you probably will not look up for you will promptly forget the definitions). Just the study of the table of relationships of neoplastic viruses and carcinogens to tumors will prove illuminating. If you do that much, you'll read the rest.

ROUS, P. The Nearer Causes of Cancer. J.A.M.A. 122, 9:573 (June 26), 1943.

Prevents as Well as Heals—Sulfaguanidine proved effective in stopping the spread of dysentery.

SCOTT, J. C. Prophylactic Use of Sulfaguanidine. J.A.M.A. 122, 9:588 (June 26), 1943.

What Army Blood Tests Reveal—Consider these five pithy commentaries. Syphilis is essentially a disease of Negroes. Our white population enjoys a syphilis rate that compares favorably with any country in the world (including the Scandinavian). Among white men syphilis is a disease of the social outcast. Some health workers tend to gloss over the high prevalence of syphilis among Negroes in north and south, city and country. The sooner we recognize the true situation and get busy doing something about it, the better will be the nation's health.

SMILLIE, W. G. Syphilis in the United States Primarily a Negro Problem. J.A.M.A. 122, 6:365 (June 5), 1943.

Best We Have To Offer—Seven suggested don'ts and do's for parents, should poliomyelitis appear in epidemic form this fall.

STIMSON, P. M. Prevention of Infantile Poliomyelitis. J.A.M.A. 122, 11:764 (July 10), 1943.

"So David Prevailed over the Philistine, with a Sling"—In 46 state, county or city health departments 300 professional and clerical employees comprise the task-force set out to solve the whole nation's industrial hygiene problems that cause the loss of 500 million man days of labor. To mop up the flood of the 10 billions of dollars that sickness costs, just a few dollars over a million are being spent annually. What the valiant 46 units are attempting to do is reported upon.

TRASKO, V. M. Activities of State and Local Industrial Hygiene Services in a War Year. Pub. Health Rep. 58, 24:904 (June 11), 1943.

Sulfa Drug Stops Scarlet Fever—In the face of a scarlet fever outbreak in a naval station, sulfadiazine effectively stopped the spread and reduced the number of daily sick calls due to other respiratory complaints.

WATSON, R. F., *et al.* Sulfadiazine Prophylaxis in an Epidemic of Scarlet Fever. J.A.M.A. 122, 11:730 (July 10), 1943.

ASSOCIATION NEWS

THREE-DAY WARTIME PUBLIC HEALTH CONFERENCE AND
SEVENTY-SECOND ANNUAL BUSINESS MEETING
AMERICAN PUBLIC HEALTH ASSOCIATION
New York, N. Y., October 12, 13, 14, 1943
Headquarters: Hotel Pennsylvania

RATES QUOTED BY NEW YORK HOTELS

Wartime Public Health Conference and Seventy-second Annual Business Meeting—October 12–14, 1943

	Rooms With Bath	
	Single	*Double*
Headquarters:		
Hotel Pennsylvania, 7th Avenue and 33rd Street	$3.85– 8.80	$5.50– 9.90
Hotels near Hotel Pennsylvania:		
Governor Clinton, 31st Street and 7th Avenue	3.30– 5.50	4.40– 7.70
McAlpin, Broadway and 34th Street	3.30– 6.60	4.95– 8.80
New Yorker, 34th Street and 8th Avenue	3.85– 8.80	5.50–11.00
Selected Hotels Outside Pennsylvania Zone:		
Ambassador, Park Avenue and 51st Street	5.00– 8.00	7.00–10.00
Astor, Broadway and 44th Street	3.00– 5.00	5.00– 8.00
Barbizon (Women), Lexington Avenue and 63rd Street	3.00– 3.50	4.50– 5.50
Biltmore, Madison Avenue and 43rd Street	5.50–12.00	7.50–14.00
Bristol, 129 West 48th Street	2.50– 4.00	3.50– 6.00
Commodore, Lexington Avenue and 42nd Street	3.50– 5.50	5.50– 8.80
Cornish Arms, 311 West 23rd Street	2.25– 2.50	3.50– 4.00
Fifth Avenue Hotel, 24 Fifth Avenue (9th Street)	3.75– 5.00	5.00– 7.00
George Washington, 23rd Street and Lexington Avenue	2.00– 4.00	3.50– 6.00
Lexington, 48th Street and Lexington Avenue	4.00– 6.00	5.50– 8.00
Lincoln, 8th Avenue and 44th Street	3.00– 5.00	4.00– 8.00
Midston House, 22 East 38th Street	3.00– 3.25	4.00– 4.50
New Weston, Madison Avenue and 50th Street	4.00– 6.00	6.00– 9.00
Paramount, 46th Street, West of Broadway	2.50– 4.50	4.00– 8.00
Park Central, 7th Avenue and 55th Street	4.00– 5.00	6.00– 7.00
Parkside, 18 Gramercy Park South	2.50– 3.00	5.00
Piccadilly, 227 West 45th Street	2.50– 4.00	3.50– 6.00
Prince George, 14 East 28th Street	2.50– 4.00	3.50– 7.00
Roosevelt, Madison Avenue and 45th Street	4.50– 8.00	6.50–12.00
St. Regis, Fifth Avenue and 55th Street	6.00– 7.00	7.00–11.00
Seymour, 50 West 45th Street	4.00– 5.00	5.50– 6.00
Shelton, 49th Street and Lexington Avenue	3.50– 5.00	5.00– 7.00
Waldorf-Astoria, 50th Street and Park Avenue	7.00–10.00	10.00–15.00
Wellington, 7th Avenue and 55th Street	2.50– 4.00	3.50– 6.00

NEW YORK LOCAL COMMITTEE

HON. F. H. LAGUARDIA, Mayor, City of New York, *Honorary Chairman*
ERNEST L. STEBBINS, M.D., Commissioner of Health, City of New York, *General Chairman*
EDWARD S. GODFREY, JR., M.D., State Health Commissioner of New York, *Co-Chairman*
LEONA BAUMGARTNER, M.D. Director, Bureau of Child Hygiene, New York City Health Department, *Secretary*
MATTHEW A. BYRNE, Secretary, New York City Department of Health, Treasurer

EXECUTIVE COMMITTEE

ERNEST L. STEBBINS, M.D., Commissioner of Health, City of New York, *Chairman*
EDWARD S. GODFREY, JR., M.D., State Health Commissioner of New York
LEONA BAUMGARTNER, M.D., Director, Bureau of Child Hygiene, New York City Health Department
MATTHEW A. BYRNE, Secretary, New York City Department of Health
FRANK KIERNAN, Director, New York Tuberculosis and Health Association
FRANK A. CALDERONE, M.D., Deputy Commissioner, New York City Department of Health
JOHN OBERWAGER, M.D., Director, Sanitary Bureau, New York City Department of Health
JOHN L. RICE, M.D., Public Health Consultant, Lederle Laboratories, Inc., New York
IAGO GALDSTON, M.D., Secretary, Medical Information Bureau, New York Academy of Medicine

APPLICANTS FOR MEMBERSHIP

The following individuals have applied for membership in the Association. They have requested affiliation with the sections indicated.

Health Officers Section

Gilbert Cottam, M.D., State Capitol Bldg., Pierre, S. D., Supt., State Board of Health
Lieut. Heward E. Elmer, Sn.C., SCU 1913, Station Hospital, Camp White, Medford, Ore., Asst. Chief, Sanitation Branch
Mordy A. Elstein, M.D., Delta County Health Dept., Escanaba, Mich., Director
Jose N. Gandara, M.D., Dept. of Health, San Juan, Puerto Rico, Asst. Commissioner of Health
Benoit Genest, M.D., D.P.H., Unite Sanitare, Ste-Anne de la Pocatiere, Kamouraska, P. Q., Can., Health Officer, Ministry of Health
Ernest L. Glasscock, M.D., 522 North Third, Burlington, Iowa, P. A. Surgeon (R), U. S. Public Health Service, and Director, Des Moines County Health Center
Len D. Hagaman, M.D., 215 N. Church St., Lenoir, N. C., Health Officer, Burke-Caldwell Health District
Claude D. Head, Jr., M.D., 831 Mercantile National Bank Bldg., Dallas, Tex., Senior Surgeon, U. S. Public Health Service
Zerah P. King, M.D., 615 N Street, Sanger, Calif., Health Officer
Gilcin F. Meadors, M.D., Richmond County Health Dept., Rockingham, N. C., Health Officer
James J. Pittman, M.D., Walthall County Health Officer, Tylertown, Miss.
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Laboratory Section

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Robert H. Boe, 1202 Shelley Ave., Austin 21, Tex., Immunologist, State Health Dept.

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Lieut. William H. Gebhard, Sn.C., 911 Holten, Lansing, Mich., Clinical Laboratory, Army of the U. S.

Arnold E. Hook, Ph.D., State Dept. of Health, Bureau of Laboratories, Lansing, Mich., Public Health Laboratory Scientist III

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Thomas F. Probey, National Institute of Health, Bethesda, Md., Pharmacologist

George M. Savage, Ph.D., Bureau of Laboratories, State Dept. of Health, Lansing, Mich., Biophysicist

Lieut. Leonard H. Schuyler, Sn.C., MDRP-Tilton General Hospital, Ft. Dix, N. J., Sanitary Corps, Army of the U. S.

Horace H. Selby, P. O. Box 431, San Diego 12, Calif., Chief Chemist, American Agar & Chemical Co.

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Reuben D. Wende, 107 E. 30th St., Austin, Tex., Senior Serologist, State Dept. of Health, Bureau of Laboratories

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Evan Wright, Kansas Board of Health, Statehouse, Topeka, Kan., Director, Food and Drug Div.

Industrial Hygiene Section

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Frank R. Ferlaino, M.D., 115 E. 61st St., New York, N. Y., Physician in Industrial Medicine, American Telephone and Telegraph Co.

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Ruth Y. Little, B.S., in N., 366 Playa del Norte, LaJolla, Calif., Industrial Nurse, Consolidated Vultee Aircraft Corp.

Wayne L. Ritter, M.D., 1046 Whitworth, Jackson, Miss., Assoc. Director, Div. of Industrial Hygiene, State Board of Health

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Public Health Education Section

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Public Health Nursing Section

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Susie M. Rice, R.N., Mountain City, Tenn., Jr. Public Health Nurse, State Dept. of Public Health

Epidemiology Section

Lieut. Ernest W. Ekermeyer, M.C., 458 West College Ave., Tallahassee, Fla., Epidemiologist, U. S. Naval Reserve

Lieut. Edward R. Garvin, M.C., 1609 Gilbert Rd., Toledo, Ohio, Epidemiologist, U. S. Navy

Ella T. Robeson, M.D., 34 South St., Middletown, N. Y., Apprentice Epidemiologist, State Dept. of Health

Robert L. Yeager, M.D., Summit Park Sanatorium, Pomona, N. Y., Medical Director

School Health Section

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Hilda Ratner, M.D., 31–31 54th St., Woodside, L. I., N. Y., Supervisor of School Physicians, New York City Health Dept.

Unaffiliated

Gloria H. Cheplin, Yale School of Medicine, Dept. of Public Health, New Haven, Conn., Student

Thomas L. Hagan, D.D.S., 1307 Pere Marquette Bldg., New Orleans, La., Dental Surgeon, U. S. Public Health Service Dist. No. 4

Edward K. Steinkopff, M.D., 1537 W. Jackson St., Springfield, Ill., Chief, Div. of Tuberculosis Control, State Dept. of Public Health

D. Bruce Wilson, M.D., D.P.H., 5 Riverside Crescent, Toronto, Ontario, Canada, Field Staff Member, International Health Division, Rockefeller Foundation

APPLICANTS FOR FELLOWSHIP

In accordance with the By-laws of the Association, the names of applicants for Fellowship are officially published herewith. They have requested affiliation with the Sections indicated. Action by the various Section Councils, the Committee on Eligibility, and the Governing Council will take place at the Wartime Conference.

Health Officers Section

Franklyn B. Amos, M.D., M.S.P.H., Assistant Director of Local Health Administration, State Department of Health, Albany, N. Y.

Daniel Bergsma, M.D., Chief, Bureau of Venereal Disease Control, State Dept. of Health, Trenton, N. J. (Major, M.C., U.S.A.)

Charles A. Kientz, Jr., Health Officer, North Arlington, N. J.

Edward R. Krumbiegel, M.D., Commissioner of Health, Milwaukee, Wis.

Carl N. Neupert, M.D., M.S.P.H., State Health Officer, Madison, Wis.

William M. Smith, M.D., M.P.H., Assistant District Health Officer, State Health Dept., Albany, N. Y. (Capt., M.C., U.S.A.)

Mary Steichen, M.D., M.S.P.H., Consultant in Public Health Practice, American Public Health Assn., New York, N. Y.

Wilmier M. Talbert, M.D., M.S.P.H., District Health Superintendent, State Dept. of Public Health, Decatur, Ill. (Lt. Comdr., U.S.N.R.)

Alexander Witkow, M.D., M.P.H., Director, Dickinson County Health Dept., Iron Mountain, Mich.

Laboratory Section

G. D. W. Cameron, M.D., D.P.H., Chief, Laboratory of Hygiene, Dominion Dept. of Health, Ottawa, Ont.

Orren D. Chapman, M.D., Director of Laboratory, Department of Health, Syracuse, N. Y.

Ward H. Cook, M.D., Director, Bureau of Laboratories, Dept. of Health, Yonkers, N. Y.

Gordon E. Davis, Sc.D., Senior Bacteriologist, U. S. Public Health Service, Hamilton, Mont. (Capt., Sn.C., A.U.S.)

William J. Deadman, M.B., City Bacteriologist, City Health Dept., Hamilton, Ont.

Claude E. Dolman, M.B., D.P.H., Director, Division of Laboratories, Provincial Board of Health, Vancouver, B. C.

George F. Forster, Ph.D., Assistant Chief, Division of Laboratories, State Dept. of Health, Chicago, Ill.

R. J. Gibbons, M.D., D.P.H., Assistant Chief, Laboratory of Hygiene, Dominion Dept. of Health, Ottawa, Ont.

Bettylee Hampil, Sc.D., Head of Virus Dept., Medical Research Division, Sharp & Dohme, Inc., Philadelphia, Pa.

Margaret W. Higginbotham, Sc.D., Bacteriologist and Serologist, State Dept. of Health, Minneapolis, Minn.

Cyril K. Johns, Ph.D., Associate Bacteriologist, Division of Bacteriology and Dairy Research, Dominion Dept. of Agriculture, Ottawa, Ont.

Col. Dwight M. Kuhns, M.C., Commanding Officer, Fourth Service Command Laboratory, Fort McPherson, Ga.

Edith Kuhns, B.S., Director, Hygienic Laboratory, State Board of Health, Helena, Mont.

Donald J. Mackenzie, M.D., C.M., Director of Laboratories, Provincial Department of Public Health, Halifax, N. S.

J. Howard Mueller, Ph.D., Professor of Bacteriology and Immunology, Harvard Medical School, Boston, Mass.

Ruth M. Myers, M.S., Associate Bacteriologist, State Department of Health, Baltimore, Md.

Nathan Nagle, A.B., Bacteriologist-in-charge, Chicago Branch Laboratory, State Dept. of Health, Chicago, Ill.

Elizabeth I. Petran, Ph.D., Senior Bacteriologist, State Dept. of Health, Baltimore, Md.

Percy M. Phelps, Dr.P.H., Sanitary Bacteriologist, Bureau of Laboratories, Western Michigan Division, State Dept. of Health, Grand Rapids, Mich.

Norman J. Pyle, V.M.D., Assistant Director, Veterinary Division, Lederle Laboratories, Inc., Pearl River, N. Y. (Major, U.S.A.)

Clara Raven, M.D., Pathologist and Director of Laboratory, Scranton State Hospital, Scranton, Pa. (Capt., M.C., A.U.S.)

James D. Reid, Sc.D., Associate Professor, Dept. of Bacteriology, and Supervisor of Bacteriology Laboratories-Hospitals, Medical College of Virginia, Richmond, Va.

Morris F. Shaffer, Ph.D., Senior Bacteriologist, Massachusetts Antitoxin and Vaccine Laboratory, Jamaica Plain, Mass.

Major Edgar J. Staff, Sn.C., A.U.S., Officer in Charge, Dept. of Bacteriology, 1st Service Command Laboratory, Jamaica Plain, Mass.

William A. Starin, Ph.D., Professor of Bacteriology, Ohio State University, Columbus, Ohio

Lyon P. Strean, Ph.D., D.D.S., Bacteriologist-in-charge, Ayerst, McKenna & Harrison, Ltd., Montreal, Que.

Charles A. Stuart, Ph.D., Associate Professor,

Arnold Laboratory, Brown University, Providence, R. I.

Earl J. Sunkes, D.P.H., Assistant Director of Laboratories, State Dept. of Public Health, Atlanta, Ga.

William H. Swartzendruber, B.A., Coördinating Bacteriologist, State Department of Public Health, Springfield, Ill.

Anna I. van Saun, Director, Division of Laboratories, Board of Health, Paterson, N. J.

Harriette D. Vera, Ph.D., Bacteriologist, Baltimore Biological Laboratory, Baltimore, Md.

Kenneth M. Wheeler, Ph.D., Research Microbiologist, State Health Dept., Hartford, Conn.

Lieut. Edwin O. Wicks, A.U.S., Chief, Venereal Disease Section, Fourth Service Command Laboratory, Ft. McPherson, Ga.

Arthur W. Wright, M.D., Professor of Pathology and Bacteriology, Albany Medical College, and Pathologist and Bacteriologist-in-Chief, Albany Hospital, Albany, N. Y.

Vital Statistics Section

John W. Fertig, Ph.D., Professor of Biostatistics, DeLamar Institute of Public Health, Columbia University, New York, N. Y.

Engineering Section

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Herbert M. Bosch, M.P.H., Public Health Engineer, State Dept. of Health, Minneapolis, Minn. (Major, Sn.C., U.S.A.)

J. Matt Carr, M.S., Sanitary Engineer, State Dept. of Health, Linden, Tex. (Capt., Sn.C., U.S.A.)

Lloyd K. Clark, S.B., Director, Division of Sanitary Engineering, State Health Dept., Bismarck, N. D. (Major, Sn.C., U.S.A.)

Charles M. Davidson, B.S.C.E., Sanitary Engineer, Louisville and Jefferson County Health Dept., Louisville, Ky.

Samuel M. Ellsworth, B.S., Consulting Engineer, and Lecturer, Harvard Graduate School of Engineering, Boston, Mass.

Herbert B. Foote, C.E., Director, Division of Water and Sewage, State Board of Health, Helena, Mont.

Harold B. Gotaas, M.S.C.E., Sc.D., Chief of Engineering Section, Division of Health and Sanitation, Office of Coordinator of Inter-American Affairs, Washington, D. C. (Major, Sn.C.)

Carl D. Gross, M.S., Principal Sanitary Engineer, State Health Department, Springfield, Ill.

Herbert H. Hasson, B.S., Engineering Director, W. K. Kellogg Foundation, Battle Creek, Mich.

Chauncey A. Hyatt, Consulant on Swimming Pool Sanitation, State Dept. of Public Health, Chicago, Ill.

James M. Jarrett, B.S.C.E., P.A. Sanitary Engineer (R), U. S. Public Health Service, Norfolk, Va.

Francis W. Kittrell, M.S., Associate Sanitary Engineer, Tennessee Valley Authority, Florence, Ala.

Clarence W. Klassen, B.S.C.E., Chief Sanitary Engineer, State Dept. of Public Health, Springfield, Ill.

William H. Larkin, C.E., Senior Sanitary Engineer, State Dept. of Health, New York, N. Y.

Maurice LeBosquet, Jr., M.S., Senior Public Health Engineer, Office of Stream Sanitation, U. S. Public Health Service, Cincinnati, Ohio

David B. Lee, M.S.S.E., Chief Sanitary Engineer, State Health Dept., Jacksonville, Fla. (Capt., Sn.C., U.S.A.)

John A. Logan, D.Sc., Chief Engineer, Russell & Axon, St. Louis, Mo.

Alan C. Love, M.S.S.E., Sanitary Engineer, McLennan County Health Unit, Waco, Tex.

Franz J. Maier, B.S.C.E., P. A. Sanitary Engineer, U. S. Public Health Service, New York, N. Y.

Milton M. Miller, M.S., Milk Specialist, U. S. Public Health Service, Washington, D. C.

Emanuel H. Pearl, M.S.E., Assistant Public Health Engineer, Ohio River Pollution Survey, U. S. Public Health Service, Washington, D. C. (Lieut., Corps of Engineers, U.S.A.)

Major Harley M. Riley, Sn.C., U.S.A., Assistant Chief, Sanitation Branch, Medical Division, Fort Bragg, N. C.

Charles L. Senn, B.S.C.E., Director, Sanitation Section, City Health Dept., Los Angeles, Calif.

L. Glen Shields, M.S., Associate Sanitary Engineer, Dept. of Buildings and Safety, Detroit, Mich.

Chester A. Smith, B.S.C.E., Associate Engineer, Burns & McDonnell Engineering Co., Kansas City, Mo.

W. Brewster Snow, M.S., Acting Associate Professor of Sanitary Engineering, School of Public Health, University of North Carolina, Chapel Hill, N. C.

Frank M. Stead, M.S., Industrial Hygiene Engineer, Los Angeles County Health Dept., Los Angeles, Calif.

James H. Stephens, M.S., Senior Sanitary Engineer, State Board of Health, Columbia, S. C.

Dick C. Thompson, B.E., Sanitary Engineer, Davidson County Health Dept., Nashville, Tenn.

Clarence J. Velz, C.E., Water Consultant, Region No. 2, National Resources Planning Board, New York, N. Y.

W. Wallace White, C.P.H., Director, Division of Public Health Engineering, State Health Dept., Reno, Nev.

Ben L. Williamson, M.S., Assistant Engineer, State Health Dept., Des Moines, Iowa

Joseph A. Willman, M.S., Public Health Engineer, Muscogee County Health Dept., Columbus, Ga.

Lewis A. Young, M.S., Associate Chief Engineer, Division of Health and Sanitation, Office of Coordinator of Inter-American Affairs, Bogota, Colombia (Capt., Sn.C., A.U.S.)

Industrial Hygiene Section

Joseph C. Aub, M.D., Physician, Massachusetts General Hospital and Professor in Research Medicine, Harvard Medical School, Boston, Mass.

Heinrich Brieger, M.D., Teacher of Public Health and Preventive Medicine, Hahnemann Medical College, Philadelphia, Pa.

Hugh P. Brinton, Ph.D., Statistician, U. S. Public Health Service, Washington, D. C.

John F. Cadden, M.D., M.P.H., Industrial Physician, American Viscose Corp., Roanoke, Va.

Robert H. Flinn, M.D., Surgeon, U. S. Public Health Service, Safety & Security Branch, Office of Chief of Ordnance, War Department, Chicago, Ill.

William G. Fredrick, Sc.D., Assistant Industrial Hygienist and Chief Chemist, Bureau of Industrial Hygiene, Department of Health, Detroit, Mich.

Lydia G. Giberson, M.D., C.M., Industrial Psychiatrist, Metropolitan Life Insurance Company, New York, N. Y.

Lyman D. Heacock, D.D.S., M.P.H., Dental Consultant, Division of Industrial Hygiene, U. S. Public Health Service, Bethesda, Md.

Lemuel C. McGee, M.D., Ph.D., Medical Director, Hercules Powder Co., Wilmington, Del.

Stuart F. Meek, M.D., Assistant Medical Director in charge of Industrial Hygiene, Chrysler Corp., Detroit, Mich.

A. Victor Nasatir, M.D., M.S.P.H., Director of Industrial Hygiene, City Health Dept., Los Angeles, Calif. (Capt., M.C., A.U.S.)

Frank A. Patty, B.S., Director of Industrial Hygiene, Fidelity & Casualty Co. of New York, New York, N. Y.

O. A. Sander, M.D., In Private Practice in Industrial Field, Milwaukee, Wis.

Alfred N. Setterlind, M.S., Chief Chemist, Division of Industrial Hygiene, State Dept. of Public Health, Chicago, Ill.

Joseph Shilen, M.D., Director, Bureau of Industrial Hygiene, State Department of Health, Harrisburg, Pa.

Emil A. Steiner, M.D., M.P.H., Industrial Toxicologist, Haskell Laboratory of Industrial Toxicology, Du Pont Experimental Station, Wilmington, Del.

James H. Sterner, M.D., Director, Laboratory of Industrial Medicine, Eastman Kodak Co., Rochester, N. Y.

Major Leon H. Warren, M.C., U.S.A., Assistant, Research Coördinating Branch, Plans Division, Office of the Surgeon General, War Department, Washington, D. C.

John J. Wittmer, M.D., Director, Medical and Personnel Departments, Consolidated Edison Company of New York, Inc., New York, N. Y.

McIver Woody, M.D., Head of Medical Dept., Standard Oil Company of New Jersey, New York, N. Y.

Food and Nutrition Section

C. Olin Ball, Ph.D., Technical Director, Owens-Illinois Can Co., Toledo, Ohio

Adelia M. Beeuwkes, M.S., Instructor in Nutrition, University of Michigan, Ann Arbor, Mich.

Florence H. Case, B.S., Nutrition Consultant, State Dept. of Health, Providence, R. I.

Ruth C. Clouse, Ph.D., Chairman, Dept. of Home Economics and Professor of Nutrition, Illinois Institute of Technology, Chicago, Ill.

James E. Fuller, Ph.D., Research Professor of Bacteriology, Massachusetts State College and Experiment Station, Amherst, Mass.

Robert S. Harris, Ph.D., Director, Nutritional Biochemistry Laboratories, Massachusetts Institute of Technology, Cambridge, Mass.

Raymond Hertwig, B.S., Scientific Consultant, The Borden Co., New York, N. Y.

Bertha Holman, Nutritionist, East Harlem Dental and Nutrition Service, Community Service Society, New York, N. Y.

Bernice Hopper, M.S., Principal Nutritionist, State Dept. of Public Health, Nashville, Tenn.

Helen A. Hunscher, Ph.D., Professor and Head, Home Economics Dept., Western Reserve University, Cleveland, Ohio

Ruth M. Kahn, M.S., Chief of Food Clinic,

Washington University Clinic, St. Louis, Mo.

Emanuel Kaplan, Sc.D., Chief, Division of Chemistry, City Health Dept., Baltimore, Md.

Milton L. Laing, M.S., Chief Chemist, Armour & Co., Chicago, Ill.

Louis Lang, M.A., Chief Chemist, National Sugar Refining Co., Long Island City, N. Y.

Ethel A. Martin, M.S., Director of Nutrition Service, National Dairy Council, and Lecturer in Home Economics, University of Chicago, Chicago, Ill.

Roe E. Remington, Ph.D., Professor of Nutrition, Medical College of South Carolina, Charleston, S. C.

Grace H. Sanders, M.S., Director, Division of Health Education, Knoxville-Knox County Health Dept., Knoxville, Tenn.

Jane Sedgwick, B.S., Nutrition Consultant, Bureau of Maternal and Child Health, State Dept. of Public Health, San Francisco, Calif.

Helen R. Stacey, M.A., Specialist in Nutrition, Children's Bureau, Washington, D. C.

Maternal and Child Health Section

William L. Hughes, Ph.D., Acting Chairman, Dept. of Health, Physical Education and Recreation, Teachers College, Columbia University, New York, N. Y.

Betty Huse, M.D., Regional Medical Consultant, Children's Bureau, Washington, D. C.

Emory W. Morris, D.D.S., General Director and Treasurer, W. K. Kellogg Foundation, Battle Creek, Mich.

Ruth J. Raattama, M.D., M.P.H., Director of Maternal and Child Health and Crippled Children, State Department of Health, Boise, Idaho

William M. Schmidt, M.D., Regional Medical Consultant, Children's Bureau, Washington, D. C.

Susan P. Souther, M.D., M.P.H., Chief, Division of Child Hygiene, State Dept. of Health, Columbus, Ohio

Public Health Education Section

C. K. Chu, M.D., Dr.P.H., Director, National Institute of Health, Chungking, China

John E. Farrell, B.A., Executive Secretary, Rhode Island Medical Society, Providence, R. I.

Fay M. Hemphill, M.S.P.H., Health Education Specialist, U. S. Public Health Service, Bethesda, Md.

Rae E. Kaufer, B.S., Assistant Health Education Consultant, U. S. Public Health Service, Washington, D. C.

Alice H. Miller, C.P.H., Associate Health Education Consultant, U. S. Public Health Service, Washington, D. C.

Eunice N. Tyler, C.P.H., Associate Health Education Consultant, U. S. Public Health Service, Washington, D. C.

Epidemiology Section

Nicholas P. Cosco, M.D., Health Officer, Middletown, N. Y.

Herman C. Mason, Ph.D., Associate Professor, Dept. of Bacteriology and Immunology, University of North Carolina, Chapel Hill, N. C.

Unaffiliated

Oswald N. Andersen, M.D., Director, School of Health and Professor of Hygiene, Stanford University, Calif.

Kenneth A. Easlick, D.D.S., Associate Professor, School of Dentistry and School of Public Health, University of Michigan, Ann Arbor, Mich.

Lester A. Gerlach, D.D.S., Dental Director, Health Dept., Milwaukee, Wis.

Allen O. Gruebbel, D.D.S., M.P.H., Director, Dental Division, State Board of Health, Jefferson City, Mo.

Albert D. Kaiser, M.D., Consulting Pediatrician, State Department of Health, and Associate Professor of Pediatrics, University of Rochester Medical School, Rochester, N. Y.

George A. Nevitt, D.D.S., M.S.P.H., P. A. Dental Surgeon (R), U. S. Public Health Service, New York, N. Y.

Walter J. Pelton, D.D.S., M.S.P.H., P. A. Dental Surgeon, U. S. Public Health Service, Washington, D. C.

C. Morley Sellery, M.D., Director, Health Service Section, Los Angeles City Schools, Los Angeles, Calif.

Col. James S. Simmons, M.C., Chief, Preventive Medicine Division, Office of the Surgeon General, U. S. Army, Washington, D. C.

Clifford R. Taylor, D.D.S., M.S.P.H., Assistant Director, Bureau of Public Health Dentistry, State Dept. of Health, Lansing, Mich.

DECEASED MEMBERS

ALICE G. BRYANT, M.D., Boston, Mass., Elected Member 1921, Elected Fellow 1923, Engineering Section

JOHN W. ELDER, M.D., Albuquerque, N. M., Elected Member 1940, Health Officers Section

HARRY B. MELLER, Pittsburgh, Pa., Elected Member 1930, Engineering Section

FRANK C. RAINIER, Whittier, Calif., Elected Member 1940, Laboratory Section

Preliminary Program of the Scientific Sessions of the Wartime Public Health Conference and the 72nd Annual Business Meeting of the American Public Health Association, and Meetings of Related Organizations

New York, N. Y.

October 11, 12, 13, and 14, 1943

HOTEL PENNSYLVANIA

THE Annual Meeting Program Committee offers a preview of the content of scientific sessions planned in connection with the Wartime Conference and the 72nd Annual Business Meeting in New York, N. Y. In many instances, sessions are complete. In others, places are purposely left open for important matters which may develop before October. Inaccuracies and omissions are to be expected, and it is hoped they will be excused. The professional affiliations and addresses of speakers are not given, but a complete index to participants will be published in the final program, which will be distributed to all delegates at the Registration Desk, Hotel Pennsylvania. Registration headquarters will be opened at 9:30 A.M. on Monday, October 11.

MONDAY MEETINGS

AMERICAN PUBLIC HEALTH ASSOCIATION GOVERNING COUNCIL

2:30 P.M. First Meeting—Parlor 2.

AMERICAN SCHOOL HEALTH ASSOCIATION

2:30 P.M. First General Session—Salle Moderne.

Presiding: CLAIR E. TURNER, DR.P.H., *President.*

TODAY'S PROBLEMS IN SCHOOL HEALTH EXAMINATIONS

Panel Leader: HAROLD H. MITCHELL, M.D.

Panel:
ARTHUR R. TURNER, M.D.
C. MORLEY SELLERY, M.D.
WILLIAM E. AYLING, M.D.
GEORGE M. WHEATLEY, M.D.

MONDAY MEETINGS (Cont.)

AMERICAN SCHOOL HEALTH (Cont.)

8:30 P.M. Second General Session—Salle Moderne.

Presiding: CLAIR E. TURNER, DR.P.H., *President.*

Report of the Massachusetts Vision Test Study. LURA OAK, PH.D.

Dental Caries Control in School Children. FRANCES KRASNOW, PH.D.

Discussion. WILSON G. SMILLIE, M.D., and E. C. MCBEATH, D.D.S.

Citations for Distinguished Service.

AMERICAN SOCIAL HYGIENE ASSOCIATION

8:30 P.M. Roof Garden.

CANCER SYMPOSIUM COMMITTEE

Presiding: THOMAS J. DUFFIELD.

SYMPOSIUM ON CANCER CONTROL

10:00 A.M. Georgian Room.

EPIDEMIOLOGY

Round Table Discussion	*Symposium Participants*
Cancer Research	CLARENCE C. LITTLE, SC.D.
Epidemiology	THOMAS J. DUFFIELD
Reporting of Cancer Cases in New York State	MORTON L. LEVIN, M.D.

12:30 P.M. Luncheon Meeting, Hotel McAlpin.

ADMINISTRATION

State and Federal Cancer Program	JAMES W. HAWKINS, M.D.
County Cancer Program	J. LOUIS NEFF

Round Table Discussion	*Symposium Participants*

2:30 P.M. Georgian Room.

SERVICE TO CANCER PATIENTS—CLINICS, HOSPITALS, ETC.

Round Table Discussion	*Symposium Participants*
The State-wide Cancer Record Registry in Connecticut	ELEANOR J. MACDONALD
Results of Treatment	HAYES MARTIN, M.D.
The Needs of the Terminal Cancer Patients in Massachusetts	HILDA LAROCCA

MONDAY MEETINGS (Cont.)

CANCER SYMPOSIUM COMMITTEE (Cont.)

8:00 P.M. Georgian Room.

CANCER EDUCATION

Round Table Discussion	*Symposium Participants*
Education in Cancer	CLAIR E. TURNER, DR.P.H.
Evaluation of Educational Program in Massachusetts	HERBERT L. LOMBARD, M.D., MILDRED TULLY, and EVELYN POTTER
The Educational Program of the American Society for the Control of Cancer	HERMAN C. PITTS, M.D.

Symposium Participants

MILLARD KNOWLTON, M.D.
CHARLES L. LARKIN, M.D.
W. J. MURPHY, M.D.
RAYMOND V. BROKAW, M.D.
EDMUND ZIMMERER, M.D.
HERBERT R. KOBES, M.D.
MORTIMER WARREN, M.D.
CHANNING C. SIMMONS, M.D.
FRANK L. RECTOR, M.D.
LAUREN V. ACKERMAN, M.D.
GEORGE C. WILKINS, M.D.
LOUIS C. KRESS, M.D.
MRS. LEA M. FARRELL
GEORGE S. T. PEEPLES, M.D.
CLARENCE F. BALL, M.D.

CONFERENCE OF STATE AND PROVINCIAL PUBLIC HEALTH LABORATORY DIRECTORS

9:30 A.M. Conference Room 2.
2:30 P.M. Conference Room 2.

CONFERENCE OF STATE SANITARY ENGINEERS

9:30 A.M. Parlor 1.
2:30 P.M. Parlor 1.

CONFERENCE OF TEACHERS OF PREVENTIVE MEDICINE

11:00 A.M. Parlor 2.
2:30 P.M. Keystone Room.

INTER-AMERICAN CONFERENCE ON HEALTH EDUCATION

9:30 A.M. Parlor B.
2:30 P.M. Parlor B.

SESSIONS FROM TUESDAY, OCTOBER 12, TO THURSDAY, OCTOBER 14, INCLUSIVE

TUESDAY, 9:30 A.M.

HEALTH OFFICERS

First Session—Ball Room

Presiding: MALCOLM R. BOW, M.D., *Chairman.*

Section Business.

Present Status of Knowledge Concerning Etiology of Cancer. CORNELIUS P. RHOADS, M.D.

The Epidemiology of Cancer—From the Viewpoint of the Health Officer. MORTON L. LEVIN, M.D.

Results in Breast Cancer Therapy Applied to Control Programs. JAMES W. HAWKINS, M.D.

Primary Atypical Pneumonia. JOHN H. DINGLE, M.D.

LABORATORY

First Session—Roof Garden

Presiding: PEARL L. KENDRICK, SC.D., *Chairman.*

Section Business.

Report of the Coördinating Committee on Standard Methods. *Chairman,* LIEUTENANT COLONEL A. PARKER HITCHENS, M.C.

Report of the Standard Methods Committee on Diagnostic Procedures and Reagents. *Chairman,* WILLIAM D. STOVALL, M.D.

Report of the Standard Methods Committee on Virus and Rickettsial Diseases. *Chairman,* THOMAS FRANCIS, JR., M.D.

Report of the Standard Methods Committee on Examination of Water and Sewage. *Chairman,* WALTER L. MALLMANN, PH.D.

Report of the Standard Methods Committee on Examination of Milk and Milk Products. *Chairman,* ROBERT S. BREED, PH.D.

Report of the Standard Methods Committee on Biology of the Laboratory Animal. *Chairman,* BRIGADIER GENERAL RAYMOND A. KELSER.

Report of the Standard Methods Committee for Frozen Desserts and Ingredients. *Chairman,* FRIEND LEE MICKLE, SC.D.

Report of the Standard Methods Committee on Biological Products. *Acting Chairman,* HAROLD W. LYALL, PH.D.

Report of the Standard Methods Committee for the Examination of Shellfish. *Chairman,* JAMES GIBBARD.

Report of the Standard Methods Committee for the Examination of Germicides and Antibacterial Agents. *Chairman,* STUART MUDD, M.D.

Report of the Laboratory Section Representative on the Commission for the Study of Biological Stains. *Chairman,* WILLIAM D. STOVALL, M.D.

TUESDAY, 9:30 A.M.

LABORATORY (Cont.)

Report of the Section Archivist. *Chairman,* AUGUSTUS B. WADSWORTH, M.D.

Antibiotic Substances, Production by Microörganisms, Nature and Mode of Action. SELMAN A. WAKSMAN, PH.D.

The Rôle of the Public Health Laboratory in Gas Defense. EUGENE W. SCOTT, PH.D.

The Problem of Biologic Nonspecific Reactions in the Serology of Syphilis. JOHN A. KOLMER, M.D.

Discussion. JOHN F. MAHONEY, M.D.

ENGINEERING SECTION, CONFERENCE OF STATE SANITARY ENGINEERS, AND CONFERENCE OF MUNICIPAL PUBLIC HEALTH ENGINEERS

Joint Session—Madhattan Room

Presiding: A. H. WIETERS and W. SCOTT JOHNSON.

Report of the Committee on Industrial Sanitation. *Chairman,* W. SCOTT JOHNSON.

Report of the Committee on Municipal Public Health Engineering. *Chairman,* SOL PINCUS, C.E.

Report of the Committee on Sewage Disposal. *Chairman,* LANGDON PEARSE.

Report of the Committee on Shellfish. *Chairman,* L. M. FISHER, C.E.

Some Results of Swimming Pool Disinfection with Bromine. CHAUNCEY A. HYATT, and EDWARD A. PISZCZEK, M.D.

FOOD AND NUTRITION

First Session—Parlor 1

Presiding: IRA A. MANVILLE, M.D., *Chairman.*

NUTRITIVE VALUE OF PRESERVED FOODS

Nutritive Value of Canned Vegetables and Fruits. JAMES F. FEASTER, PH.D.

Effect of Preparation for Freezing, Freezing and Storage on the Vitamin Content of Vegetables. JENNY MCINTOSH, PH.D.

Effect of Dehydration on Vitamin Content of Vegetables. JAMES C. MOYER, PH.D.

Nutritive Value of Brined and Fermented Vegetables. IVAN D. JONES, PH.D., and JOHN L. ETCHELLS, PH.D.

Nutritive Value of Canned and Dehydrated Meat and Meat Products. E. E. RICE, PH.D.

The Decrease of Vitamin C in Evaporated Milk and Means of Preventing It. F. J. DOAN, and D. V. JOSEPHSON.

TUESDAY, 9:30 A.M.

FOOD AND NUTRITION (Cont.)

Section Business.

Report of the Secretary. MARIETTA EICHELBERGER, PH.D.

Report of the Coördinating Committee. *Chairman,* F. C. BLANCK, PH.D.

Microbiological Examination of Meat and Cereal Products. (Report of the Committee on Microbiological Examination of Foods.) *Chairman,* HARRY E. GORESLINE, PH.D.

The **Growth of Nutrition as a Science.** (Report of the Committee on Nutritional Problems.) *Chairman* C. G. KING, PH.D.

Food Conservation. (Report of the Committee on Foods.) *Chairman,* BERNARD E. PROCTOR, PH.D.

Report of the Joint Committee on Analyzing Frozen Desserts. *Chairman,* FREDERICK W. FABIAN, PH.D.

Changes in Trends in the Dairy Industry as a Result of the War. (Report of the Committee on Milk and Dairy Products.) *Chairman,* J. A. KEENAN, PH.D.

Report of the Committee on Food Utensil Sanitation. *Chairman,* GEORGE J. HUCKER, PH.D.

Status of the Members of the B. Complex. (Report of the Committee on Assay of Foods.) *Chairman,* HENRY T. SCOTT, PH.D.

Report of the Committee on Membership and Fellowship. *Chairman,* RACHAEL REED.

Election of Officers.

Note: There will be a meeting of the Section Council immediately following this session.

PUBLIC HEALTH EDUCATION

First Session—Salle Moderne

Presiding: EDNA A. GERKEN, *Chairman.*

DISCOVERY OF NEW RESOURCES FOR HEALTH EDUCATION IN WARTIME

Chairman: HELEN MARTIKAINEN.

The Use of Volunteers. MARY P. CONNOLLY.

Preparing High School Students for Community Service. GRAHAM L. DAVIS.

The OCD Block Plan. HOWARD Y. MCCLUSKY, PH.D.

Health Education in Japanese Relocation Camps. SALLY LUCAS JEAN.

Resources of Industry for Health Education. HOMER N. CALVER.

Discussion. CARL A. WILZBACH, M.D., and KENNETH D. WIDDEMER.

Section Business.

TUESDAY, 9:30 A.M.

PUBLIC HEALTH NURSING

First Session—Georgian Room

Presiding: ELLA E. MCNEIL, R.N., *Chairman.*

Section Business.

SIGNIFICANCE OF TODAY'S EXPERIENCES FOR FUTURE PUBLIC HEALTH NURSING PRACTICE

Scope of Service. Speaker to be announced.

Personnel—Education and Accreditation. Speaker to be announced.

Administration of Public Health Nursing Services. Speaker to be announced.

Summary. Speaker to be announced.

EPIDEMIOLOGY

First Session—Parlor 2

Presiding: ERNEST L. STEBBINS, M.D., *Chairman*

Section Business.

The Problem of Rickettsial Diseases Among the Armed Forces. COLONEL EDGAR ERSKINE HUME, M.C.

Endemic Typhus in the United States. LIEUTENANT COLONEL HARRY E. WRIGHT, M.C.

Streptococcal Infections in a Naval Training Station. LIEUTENANT COMMANDER F. F. SCHWENTKER, M.C.

Staphylococcus and Streptococcus Carriers—Sources of Food-borne Outbreaks in War Industries. V. A. GETTING, M.D., A. D. RUBENSTEIN, M.D., and G. E. FOLEY.

The Problem of Control of Tuberculosis in Mental Hospitals with Reduced Personnel. ROBERT E. PLUNKETT, M.D.

Present and Post-war Health Problems in Connection with Parasitic Diseases. W. H. WRIGHT, M.D.

Section Business.

TUESDAY, 9:30 A.M. AND 2:30 P.M.

FOOD AND NUTRITION AND SCHOOL HEALTH SECTIONS, AND AMERICAN SCHOOL HEALTH ASSOCIATION

Joint Session

Presiding: LEONA BAUMGARTNER, M.D., and C. MORLEY SELLERY, M.D.

WORKSHOP ON ADJUSTMENTS OF SCHOOL HEALTH PERSONNEL IN WARTIME

Rural Group A—Conference Room 3

Leader: MAYHEW DERRYBERRY, PH.D.

Recorder: RUTH E. GROUT, PH.D.

Consultants:

HUGH B. ROBINS, M.D.
JESSIE M. BIERMAN, M.D.
MARION MURPHY, R.N.
T. G. PULLEN, JR.
ROSEMARY KENT
VIVIAN DRENCKHAHN
PEARL RORABAUGH

Medium-Size Community Group B—Parlor B

Leader: ALICE V. KELIHER, PH.D.

Recorder: N. P. NEILSON, PH.D.

Consultants:

JOSEPH I. LINDE, M.D.
MARION FEGLEY, R.N.
FLORENCE BEAUMONT
PAULINE J. WILLIAMS
FLORENCE C. O'NEILL

Large City Group C—Parlor C

Leader: DOROTHY B. NYSWANDER, PH.D.

Recorder: GEORGE T. PALMER, DR.P.H.

Consultants:

HAROLD H. MITCHELL, M.D.
ALBERT D. KAISER, M.D.
BERYL LUSSOW, R.N.
S. S. LIFSON
MRS. WALTER MINCKS
WILLIAM H. BRISTOW
ALICE H. SMITH

Admission to the WORKSHOP is by card only. Those wishing to register may apply to Dr. George M. Wheatley, Secretary, School Health Section, 1 Madison Avenue, New York 10, N. Y.

TUESDAY, 2:30 P.M.

FIRST SPECIAL SESSION

Ball Room

Presiding: A. J. ALTMEYER.

NEW VENTURES TOWARD HEALTH SECURITY

The Present Status of Health Insurance in the United States. NATHAN SINAI, DR.P.H.

Canada's Plans for Social Security. J. J. HEAGERTY, M.D.

Latin America Looks Toward the Future. Speaker to be announced.

Health Is Social Security. HOMER FOLKS, LL.D.

Discussion.

HEALTH OFFICERS AND PUBLIC HEALTH EDUCATION SECTIONS

Joint Session—Roof Garden

Presiding: MALCOLM R. BOW, M.D., and EDNA A. GERKEN.

PLANNING FOR HEALTH EDUCATION IN THE WAR AND POST-WAR PERIODS

Chairman: W. W. BAUER, M.D.

The National Program. E. R. COFFEY, M.D., and JOHN W. STUDEBAKER.

The State Program. J. C. KNOX, M.D.

The Local Health Program. HUGH B. ROBINS, M.D.

Discussion. CHARLES E. SHEPARD, M.D.

VITAL STATISTICS

First Session—Parlor 2

Presiding: SELWYN D. COLLINS, PH.D., *Chairman*

International Vital Statistics. FORREST E. LINDER, PH.D.

Master Index of Vital Statistics. WILLIAM C. WELLING.

Report on the Use of the Confidential Death Certificate. THOMAS J. DUFFIELD.

Discussion.

Committee Reports.

Section Business.

TUESDAY, 2:30 P.M.

LABORATORY

Second Session—Madhattan Room

Laboratory Methods Used in Determining the Value of Sulfadiazine as a Prophylaxis Against Meningococcic Meningitis. COLONEL DWIGHT M. KUHNS, M.C., and CAPTAIN HARRY A. FELDMAN, M.C.

Health of the Army in Mobilization and War. LIEUTENANT COLONEL KARL R. LUNDEBERG, M.C.

Immunizations in the United States Army. LIEUTENANT COLONEL ARTHUR P. LONG, M.C.

Round Table Discussion:

TROPICAL DISEASE PROBLEMS OF PUBLIC HEALTH LABORATORIES OF THE UNITED STATES AND CANADA

Participants:
REGINALD M. ATWATER, M.D.
DONALD L. AUGUSTINE, M.D.
L. T. COGGESHALL, M.D.
HENRY E. MELENEY, M.D.
ERNEST L. STEBBINS, M.D.

INDUSTRIAL HYGIENE

First Session—Salle Moderne

Presiding: JAMES G. TOWNSEND, M.D., *Chairman.*

Industrial Health in the Post-war World. *Address of the Chairman.* JAMES G. TOWNSEND, M.D.

Community Emergency Medical Service in War Industry. WARD L. MOULD, M.D.

Chemical Warfare—A Chemical and Toxicological Review. LIEUTENANT COLONEL JOHN R. WOOD.

The Convalescent and Rehabilitation Training Program in the Army Air Force. BRIGADIER GENERAL N. W. GRANT.

Section Business.

MATERNAL AND CHILD HEALTH

First Session—Georgian Room

Presiding: MYRON E. WEGMAN, M.D., *Acting Chairman.*

Section Business.

Panel Session: **Rationing and the Diets of Mothers and Children.**

Panel Leader: V. P. SYDENSTRICKER, M.D.

Participants: To be announced.

TUESDAY, 2:30 P.M.

ENGINEERING

First Session—Parlor 1

Presiding: A. H. WIETERS, *Chairman.*

A SYMPOSIUM ON THE IMPACT OF THE WAR ON SANITARY ENGINEERING

Meeting the Public Health Engineering Problems of the Army Abroad. COLONEL W. A. HARDENBERGH, SN.C.

Meeting the Public Health Engineering Problems of the Navy. Speaker to be announced.

Problems in Civilian Government Occasioned by the War. ARTHUR D. WESTON.

The Sanitary Engineer in Civilian Defense. Speaker to be announced.

Procurement and Assignment of Sanitary Engineers for Military Needs. CAPTAIN C. W. KLASSEN.

Section Business.

FOOD AND NUTRITION, AND SCHOOL HEALTH SECTIONS, AND AMERICAN SCHOOL HEALTH ASSOCIATION

Joint Session—Conference Room 3, Parlors B and C

See p. 1153.

TUESDAY, 4:30 P.M.

SCHOOL HEALTH

Business Meeting—Parlor C

TUESDAY, 8:30 P.M.

FIRST GENERAL SESSION

Ball Room

Presiding: ALLEN W. FREEMAN, M.D., *President*, American Public Health Association.

Addresses of Welcome:
ERNEST L. STEBBINS, M.D., Commissioner of Health
EDWARD S. GODFREY, JR., M.D., State Commissioner of Health

Address. THE HONORABLE FIORELLO H. LAGUARDIA, Mayor of New York City.

Planning Today for Public Health Administration Tomorrow. FELIX J. UNDERWOOD, M.D., *President-elect*, American Public Health Association.

Presentation of the Sedgwick Memorial Medal Award.

Reception to the President and the President-elect. (Under the auspices of the Public Health Association of New York City.)

WEDNESDAY, 9:30 A.M.

LABORATORY

Third Session—Roof Garden

Section Business.

WHAT IS HAPPENING IN THE LABORATORY FIELD

A series of abridged papers

Ante-mortem Serology and Post-mortem Lesions in Syphilis. PAUL D. ROSAHN, M.D.

Serologic Reactions following Smallpox Vaccination. JOSEPH M. LUBITZ, M.D.

Methods for Studying Sanitary Conditions of Eating Establishments. JOHN W. WILLIAMS, M.D. and CATHARINE ATWOOD.

Results Obtained in the Use of "EC" Medium by Various Laboratories. C. A. PERRY, SC.D., and A. A. HAJNA.

Gonococci Cultures. A State Laboratory Service. MARGARET W. HIGGINBOTHAM, SC.D.

Serological Identification of Dysentery Bacilli. KENNETH M. WHEELER, PH.D.

Production of Polyvalent Antipneumococcal Serum. GEORGE F. FORSTER, PH.D. and HOWARD J. SHAUGHNESSY, PH.D.

Human Serum Albumin as a Stabilizing Agent for Schick Toxin. GEOFFREY EDSALL, M.D., and LOUISE WYMAN.

Production of Exotoxins on Culture Media Prepared from Human Red Cells. FRANK G. JONES.

WEDNESDAY, 9:30 A.M.

LABORATORY (Cont.)

Further Studies on One Type of Paracolon. C. A. STUART, PH.D., and LIEUTENANT ROBERT RUSTIGIAN, SN.C.

Complement-fixation Studies in Lymphogranuloma Venereum. CLARA NIGG, PH.D., C. H. MANN, M.D., and BETTY BOWSER, PH.D.

Laboratory Service in an Epidemic of Tinea Capitis Caused by Microsporum Audouini. RHODA W. BENHAM, PH.D., and HAROLD H. MITCHELL, M.D.

Tetanus Toxoid on Peptone-Free Media. J. HOWARD MUELLER, PH.D.

SECOND SPECIAL SESSION

Ball Room

Presiding: HARRY S. MUSTARD, M.D.

PUBLIC HEALTH IMPLICATIONS OF TROPICAL AND IMPORTED DISEASES

The Public Health Implications of Imported Malaria and Dysenteries. Speaker to be announced.

The Public Health Aspects of Certain Helminthic, Protozoan, and Mycotic Infections Resulting from the War. HENRY E. MELENEY, M.D.

Yellow Fever and Classic Typhus and the Possibility of Their Introduction into the United States. W. A. SAWYER, M.D.

Strategy Against the Global Spread of Disease. THOMAS PARRAN, M.D.

Discussion.

HEALTH OFFICERS

Second Session—Salle Moderne

Post-war Dental Programs for Official Health Agencies. G. A. NEVITT, D.D.S.

Results of Medical and Dental Examinations of 2,500 Senior High School Students. (A Part of the National Victory Corps Physical Fitness Program.) CARL A. WILZBACH, M.D.

Plasma Reserves for Civilian Defense, Their Distribution, Control, Preparation, Administration, and Clinical Use. JOHN B. ALSEVER, M.D.

Wartime Problems of the County Health Officer. HUBERT O. SWARTOUT, M.D.

The Function of the Health Officer in the Control of Tuberculosis Among Veterans. LOUIS I. DUBLIN, PH.D.

WEDNESDAY, 9:30 A.M.

PUBLIC HEALTH EDUCATION AND SCHOOL HEALTH SECTIONS

Joint Session—Parlors 1 and 2

Presiding: EDNA A. GERKEN, and LEONA BAUMGARTNER, M.D.

THE UTILIZATION OF COMMUNITY RESOURCES IN THE PREVENTION OF JUVENILE DELINQUENCY IN WARTIME

School Group—Parlor 1

Participants:

W. CARSON RYAN, PH.D.
ORAN GRAFF
CAROLINE B. ZACHRY, PH.D.
VIRGINIA L. SINTOW
HOWARD FUNK
OLGA BRUCHER
J. C. WRIGHT
VINAL H. TIBBETTS
MARION FEGLEY, R.N.
A. L. THRELKELD

Community Group—Parlor 2

Participants:

SAMUEL M. BROWNELL, PH.D., *Discussion Leader*
L. C. ROBBINS, M.D.
WADE D. CASHION
GEORGE NIHAN
EDITH BALMFORD
MARY P. LORD
MRS. BEN AIKEN
JUDGE JUSTINE WISE POLIER
SUSAN M. TULLY
SOPHIE THEIS
RUTH MATSON

INDUSTRIAL HYGIENE, FOOD AND NUTRITION, AND PUBLIC HEALTH NURSING SECTIONS

Joint Session—Georgian Room

Presiding: JAMES G. TOWNSEND, M.D., IRA A. MANVILLE, M.D., and EILA E. MCNEIL, R.N.

Standing Orders for Nurses in Industry. Prepared by the Council on Industrial Health, American Medical Association. CARL M. PETERSON, M.D.

Practical Experience in Industrial Health Education. LAWRENCE WEAVER, M.D.

Nutrition—A Factor Important for Industrial Hygiene. GEORGE R. COWGILL, PH.D.

Costs, Space, Personnel and Equipment for Feeding Programs in Small Plants. WAYNE L. RITTER, M.D.

The Industrial Nurse in Wartime. CATHERINE R. DEMPSEY, R.N.

WEDNESDAY, 9:30 A.M.

ENGINEERING

Second Session—Madhattan Room

A SYMPOSIUM ON RECENT DEVELOPMENTS IN SANITARY ENGINEERING

Engineering Problems in the Use of Glycol Vapors for Air Sterilization. BURGESS H. JENNINGS.

Modern Malaria Control. MARK D. HOLLIS.

Army Field Water Supply Developments. CAPTAIN HAYSE H. BLACK.

Philosophy and Future of Milk Control. J. LLOYD BARRON, C.E.

Factors Affecting Germicidal Efficiency of Chlorine and Chloramines. LIEUTENANT COLONEL MAX LEVINE, SN.C., and CAPTAIN GEORGE C. WEBER, SN.C.

WEDNESDAY, 2:30 P.M.

THIRD SPECIAL SESSION

Ball Room

CURRENT HEALTH DEPARTMENT PROBLEMS IN WAR

Panel Leader: HUNTINGTON WILLIAMS, M.D.
Participants: To be announced.

GOVERNING COUNCIL

Second Meeting—Parlor 2

EPIDEMIOLOGY AND LABORATORY SECTIONS

Joint Session—Georgian Room

Presiding: ERNEST L. STEBBINS, M.D., and PEARL L. KENDRICK, SC.D.

Epidemiology of Atypical Pneumonia. ALEXANDER D. LANGMUIR, M.D.

Status of Immunity in Human Subjects Artificially Infected with Influenza Virus, Type B. THOMAS FRANCIS, JR., M.D., H. E. PEARSON, M.D., JONAS E. SALK, and PHILIP N. BROWN.

Chile's Most Severe Epidemic of Meningococcus Meningitis (1942). MARIO D. PIZZI, M.D.

Meningococcus Infections in the Army. JOHN J. PHAIR, M.D.

Epidemic Keratoconjunctivitis—the Detroit Experience. JOSEPH G. MOLNER, M.D.

Epidemic Keratoconjunctivitis—Correlation of Epidemiologic Data and Results of Serum Virus Neutralization Tests. ROBERT F. KORNS, M.D., and MAJOR MURRAY SANDERS, M.C.

WEDNESDAY, 2:30 P.M.

VITAL STATISTICS SECTION AND AMERICAN ASSOCIATION OF REGISTRATION EXECUTIVES

Joint Session—Salle Moderne

Presiding: SELWYN D. COLLINS, PH.D., and WILLIAM C. WELLING.

The Committee on Vital Records. LOWELL J. REED, PH.D.

Discussion: A. W. HEDRICH, SC.D., and HALBERT L. DUNN, M.D.

Vital and Health Statistics in the Federal Government. SELWYN D. COLLINS, PH.D.

Discussion: HUNTINGTON WILLIAMS, M.D.

Problems in Population Estimation. ELBRIDGE SIBLEY.

Discussion: THOMAS B. RHODES.

MATERNAL AND CHILD HEALTH

Second Session—Madhattan Room

Section Business.

PUBLIC HEALTH AGENCIES AS ADMINISTRATORS OF A MEDICAL CARE PROGRAM FOR WIVES AND INFANTS OF ENLISTED MEN IN THE ARMED FORCES

A Medical Care Program for Wives and Infants of Men in Service as Part of a County Health Department Program. Speaker to be Announced.

A Medical Care Program for Wives and Infants of Men in Service as Part of a State Health Department Program. MERL J. CARSON, M.D.

A Year's Experience with the Administration by Public Health Agencies of a Medical Care Program for Wives and Infants of Men in Service. MARTHA M. ELIOT, M.D.

INDUSTRIAL HYGIENE

Second Session—Parlor 1

Automatically Controlled Suction Device for Field Air Sampling. ALFRED SETTERLIND.

Current Progress in Sterilization of Air. STUART MUDD, M.D.

Luminous Dial Painting—A Warning and a Practical Control Program. MANFRED BOWDITCH.

The Problem of Industrial Noise. PAUL SABINE, PH.D.

WEDNESDAY, 2:30 P.M.

FOOD AND NUTRITION AND SCHOOL HEALTH SECTIONS AND AMERICAN SCHOOL HEALTH ASSOCIATION

Joint Session—Roof Garden

Presiding: IRA A. MANVILLE, M.D., LEONA BAUMGARTNER, M.D., and CHARLES L. OUTLAND, M.D.

WAR'S IMPACT ON THE HEALTH OF SCHOOL CHILDREN

The Implications of Family Dislocation. LAWRENCE K. FRANK, PH.D.

The Increasing Responsibility of the Teacher. CAROLINE B. ZACHRY, PH.D.

Favorable and Adverse Developments in the School Environment. ABEL WOLMAN, DR.ENG.

Maintaining the Nutrition of the Child in School. VIVIAN DRENCKHAHN.

Preparing School Physicians for Increased Responsibilities. PARKER DOOLEY, M.D.

WEDNESDAY, 5:00 P.M.

PUBLIC HEALTH NURSING

Business Meeting—Parlor B

WEDNESDAY, 8:30 P.M.

SECOND GENERAL SESSION

Ball Room

Presiding: ALLEN W. FREEMAN, M.D., *President,* American Public Health Association.

Presentation of Forty Year Membership Certificates.

Recognition of National Health Honor Roll Health Officers.

Association Business.

Address. Speaker to be announced.

THURSDAY, 9:30 A.M.

INDUSTRIAL HYGIENE AND HEALTH OFFICERS SECTIONS

Joint Session—Ball Room

Presiding: JAMES G. TOWNSEND, M.D., and MALCOLM R. BOW, M.D.

State Support of Industrial Hygiene—Its Urgent Necessity. WARREN F. DRAPER, M.D.

The Private Physician, the Health Department and the Small Industrial Plant. STANLEY J. SEEGER, M.D.

Procurement and Assignment—The Problem of the Industrial Hygiene Engineer. CLARENCE D. SELBY, M.D.

Preventive Industrial Dentistry. C. R. TAYLOR, D.D.S.

The Industrial Health Program of the Chamber of Commerce of the United States of America. HOWARD STRONG.

FOOD AND NUTRITION, MATERNAL AND CHILD HEALTH, PUBLIC HEALTH NURSING, AND SCHOOL HEALTH SECTIONS

Joint Session—Parlors B and C, and Conference Room 3

HEALTH STANDARDS FOR DAY CARE CENTERS FOR CHILDREN

This will be conducted as three simultaneous round tables, each with experts in the fields of clinical pediatrics, public health nursing, nutrition, early childhood education, child guidance, social work, and sanitary engineering. While the discussion in all three instances will revolve around the needs of the child, of the family, and of the community, there will be different prime orientations. One table will approach the problem chiefly from the state level, one from the point of view of the large city, and one with regard to the small city. Since space will be limited sharply, it will be essential to make reservations in advance by mail. It is requested that persons desiring to attend one of these round tables signify this desire by writing to DR. MYRON E. WEGMAN, *Acting Chairman,* Maternal and Child Health Section, 411 East 69th Street, New York 21, N. Y., indicating their preference.

Participants:

LEONA BAUMGARTNER, M.D.
JOSEPH I. LINDE, M.D.
A. CLEMENT SILVERMAN, M.D.
MILTON I. LEVINE, M.D.
DOROTHY BAKER
ANNA DEPLANTER BOWES
MARY A. SWEENY
DOROTHEA BEHM
ERNEST G. OSBORNE, PH.D.
AMY HOSTLER
ARNOLD L. GESELL, M.D.
WILMER SCHULZE

PUTTING MERIT INTO THE MERIT SYSTEM

Club Room

An informal discussion among personnel officers, members of the Association's Merit Systems Unit, and others interested.

THURSDAY, 9:30 A.M.

ENGINEERING

Third Session—Parlor 1

A SYMPOSIUM ON POST-WAR OPPORTUNITIES AND RESPONSIBILITIES OF THE SANITARY ENGINEER

Objectives in the Programming of Post-war Sanitation Work. EARNEST BOYCE.

Housing Problems of Interest to the Public Health Engineer. M. ALLEN POND.

The Place of the Sanitary Engineer in Occupied Countries. Speaker to be announced.

Sanitary Engineering in the Western Hemisphere. MAJOR HAROLD B. GOTAAS.

EPIDEMIOLOGY

Second Session—Roof Garden

SYMPOSIUM ON GONORRHEA

The Present Status of Gonorrhea Control. MAJOR WILLIAM A. BRUMFIELD, M.C.

Methods of Transporting Gonococci to Laboratories for Cultural Study. OSCAR F. COX, M.D.

The Correlation of in vitro Sulfonamide Resistance of the Gonococcus with Failure of Sulfonamide Therapy in 105 Patients with Gonorrhea. C. M. CARPENTER, M.D., H. ACKERMAN, M. E. WINCHESTER, M.D., and J. WHITTLE.

Penicillin in the Treatment of Gonorrhea in Men. JOHN F. MAHONEY, M.D.

Control of Gonorrhea through Treatment of Women While in Detention Homes. OWEN F. AGEE, M.D.

ORAL HEALTH GROUP

First Session—Parlor 2

Presiding: C. R. TAYLOR, D.D.S., *Chairman.*

POST-WAR IMPLICATIONS OF FLUORINE AND DENTAL HEALTH

From the Viewpoint of an Epidemiologist. H. TRENDLEY DEAN, D.D.S.

From the Viewpoint of a Water Works Engineer. RAYMOND J. FAUST.

From the Viewpoint of Operative Dentistry. JOHN W. KNUTSON, D.D.S.

From the Viewpoint of Public Health Dentistry. A. O. GRUEBBEL, D.D.S.

THURSDAY, 9:30 A.M.

LABORATORY

Fourth Session—Salle Moderne

Bacteriological Methods for Controlling Cheese Quality. M. W. YALE.

Laboratory Technics for Determining the Sanitary Quality of Milk. WALTER L. MALLMANN, PH.D., and C. S. BRYAN, PH.D.

Rôle of the Laboratory in Investigating Milk-borne Epidemics. C. SIDNEY LEETE.

An "Information Please" Board of Milk Experts.

Leader: C. A. ABELE, CH.E.

Participants:
ROBERT S. BREED, PH.D.
W. D. DOTTERRER
FRIEND LEE MICKLE, SC.D.
WALTER D. TIEDEMAN, M.C.E.

PUBLIC HEALTH EDUCATION

Second Session—Georgian Room

THE PREPARATION OF HEALTH EDUCATION PERSONNEL FOR THE WAR AND POST-WAR PERIODS

Chairman: HENRY F. VAUGHAN, DR.P.H.

The Responsibility of the School of Public Health. HUGH R. LEAVELL, M.D.

Supervised Field Work. LUCY S. MORGAN, PH.D.

Preparation of the Public School Teacher. RUTH E. GROUT, PH.D.

Discussion. MAYHEW DERRYBERRY, PH.D.

THURSDAY, 2:30 P.M.

FOURTH SPECIAL SESSION

Ball Room

Presiding: ABEL WOLMAN, DR.ENG.

THE EVOLVING PATTERN OF TOMORROW'S HEALTH

Prerequisites to Better Public Health. JOSEPH W. MOUNTIN, M.D.

The Health Worker of the Future. WILLIAM P. SHEPARD, M.D.

The Post-war City. C.-E. A. WINSLOW, DR.P.H.

The Health Department of the Future. HENRY F. VAUGHAN, DR.P.H.

Hemispheric Horizons for the Future. FELIX HURTADO, M.D.

THURSDAY, 2:30 P.M.

EPIDEMIOLOGY, HEALTH OFFICERS, MATERNAL AND CHILD HEALTH, AND LABORATORY SECTIONS

Joint Session—Georgian Room

Presiding: ERNEST L. STEBBINS, M.D., MALCOLM R. BOW, M.D., MYRON E. WEGMAN, M.D., and PEARL L. KENDRICK, SC.D.

DIARRHEAL DISEASES IN WARTIME

An Epidemic of 3,000 Cases of Bacillary Dysentery Involving a War Industry and Members of the Armed Forces. C. H. KINNAMAN, M.D., and F. C. BEELMAN, M.D.

A Fly-borne Bacillary Dysentery Epidemic in a Large Military Organization. COLONEL DWIGHT M. KUHNS, M.C., and LIEUTENANT THEODORE G. ANDERSON, SN.C.

Newer Procedures in Laboratory Diagnosis and Therapy in the Control of Bacillary Dysentery. A. V. HARDY, M.D., and JAMES WATT, M.D.

Salmonellosis as a Public Health Problem in Wartime. ROY F. FEEMSTER, M.D., and A. D. RUBENSTEIN, M.D.

Two Outbreaks of Epidemic Diarrhea of the New-born in One Hospital; Relationship to Reduced Personnel. PAUL A. LEMBCKE, M.D., JAMES J. QUINLIVAN, M.D., and NORRIS G. ORCHARD, M.D.

Studies on Epidemic Diarrhea of the New-born; Isolation of a Filtrable Agent Causing Diarrhea in Calves. J. S. LIGHT, M.D., and LIEUTENANT H. L. HODES, M.C.

FOOD AND NUTRITION

Second Session—Roof Garden

NUTRITION RESEARCH

Food and Nutrition Policy Here and Abroad. FRANK G. BOUDREAU, M.D.

Contrasts and Comparisons of England's and America's Wartime Nutrition Practices. MARGARET MEAD, PH.D.

Wartime Nutrition in England as a Public Health Problem. HUGH MACDONALD SINCLAIR, M.D.

Influence of Cultural Factors upon the Nutritional Values of Vegetables. L. A. MAYNARD, PH.D.

Nutrition Survey of an Entire Rural County in North Carolina. D. F. MILAM, M.D.

NOTE: There will be a meeting of the Section Council immediately following this session.

THURSDAY, 2:30 P.M.

SCHOOL HEALTH SECTION, AMERICAN SCHOOL HEALTH ASSOCIATION, AND ORAL HEALTH GROUP

Joint Session—Salle Moderne

Presiding: LEONA BAUMGARTNER, M.D., EARL E. KLEINSCHMIDT, M.D., and C. R. TAYLOR, D.D.S.

Implications of the Victory Corps Program from the Dental Point of View. J. A. SALZMANN, D.D.S., and LEON R. KRAMER, D.D.S.

Implications of the Victory Corps Program from the Health Officer's Point of View. CARL A. WILZBACH, M.D.

Implications of the Victory Corps Program from the Educator's Point of View. JOHN LUND.

Report of the Conclusions of the Workshop Session on Adjustments of School Health Personnel in Wartime.

THE TECHNICAL EXHIBITS

MEZZANINE AND FOYERS, HOTEL PENNSYLVANIA

As befits a Wartime Conference, the Twenty-fifth Health Exhibit is streamlined and of the utmost simplicity in its arrangement and decor. Exhibitors are using limited space to bring practical information to health workers. They describe their exhibits as follows:

A. S. ALOE COMPANY

ST. LOUIS, MO. Nos. 71 AND 72

Laboratory apparatus and public health equipment of interest to current wartime problems; blood plasma apparatus of the most modern design for the taking and administration of blood, adaptable to large-scale operation or to small blood bank procedures; serological and bacteriological equipment; new and recent items of interest.

A capable member of the company will be present to give information on priorities and recent regulations for obtaining essential laboratory and public health medical equipment.

AMERICAN CAN COMPANY

NEW YORK, N. Y. Nos. 18 AND 19

The American Can Company will feature the second edition of the Canned Food Reference Manual—a publication of its research laboratories. Greatly expanded in size (over 500 pages) as well as in scope, this edition contains a compilation of the latest findings of research on canned foods, canning procedures, food essentials, modern dietary practices, nutritional and public health aspects. Over 100 illustrations dot the text. Of special interest to the public health official will be the numerous photomicrographs of vitamins embodied in the chapter on "Chemistry of the Vitamins," information on cans and canned foods in the light of wartime restrictions, and 200 pages of tables and charts in the appendix. As in the past it is presented gratis to members of the American Public Health Association and members of the medical profession. Public health officials may make their requests for copies by registering in CANCO'S booths Nos. 18 and 19.

THE AMERICAN JOURNAL OF NURSING

NEW YORK, N. Y. No. 56

Changes without precedent are taking place in nursing as a result of war, and these changes, in all their implications for the post-war future, are recorded, month by month, only in the American Journal of Nursing.

The Journal's publishers take especial pride in the fact that thousands of public health nurses keep informed through its pages, and that, among all its subscribers, of fifteen or more years' standing, public health nurses occupy first place.

BALTIMORE BIOLOGICAL LABORATORY

BALTIMORE, MD. No. 4

Exhibit of dehydrated bacteriological culture media and new peptones. Demonstration of B-B-L Desoxycholate. Desoxycholate Citrate Agars and Selenite-F Enrichment for the isolation of intestinal pathogens. B-B-L Anaerobic Agar and Brewer Petri dish cover for surface cultivation of anaerobes. B-B-L Thioglycollate Medium for sterility testing of biologics. Anaerobic Apparatus and Pipetting Machine.

BECTON, DICKINSON & COMPANY

RUTHERFORD, N. J. No. 2

Becton, Dickinson will have on display syringes and needles used for blood taking, blood tests and transfusion. Data on the conservation and standardization of instruments used in this work will also be available.

THE BORDEN COMPANY

NEW YORK, N. Y. No. 51

In a graphic and interesting manner, the exhibit of The Borden Company will explain the problem of "supply and demand" of dairy products for 1943. The anticipated amounts needed by the army and lend-lease commitments and civilians will be compared with the amount of milk expected to be produced in 1943.

CAMEL CIGARETTES—MEDICAL RELATIONS DIVISION

NEW YORK, N. Y. Nos. 57 AND 58

CAMEL Cigarettes will exhibit large detailed photographs of equipment used in comparative tests of the five largest-selling brands of cigarettes. Dramatic visualization of nicotine absorption in the human respiratory tract from cigarette smoke will be demonstrated. International news with the CAMEL Cigarette Trans-Lux "Flash Bulletins," may be seen while enjoying a supply of slow-burning CAMEL Cigarettes.

CARNATION COMPANY

OCONOMOWOC, WIS. No. 67

You are invited to visit the Carnation Company booth, No. 67, where you will find presented some interesting information on the various uses of Irradiated Carnation Milk for infant feeding, child feeding, and general diet purposes. Valuable literature will also be available for distribution.

CARWORTH FARMS, INC.

NEW CITY, N. Y. No. 33

This exhibit will demonstrate that mice, similar externally, may be very different, one from another. Litters will be shown derived from matings of randombred and purebred stocks. It will be shown that, not only is the cost of an experiment using miscellaneous heterozygous animals much greater than when selectively bred homozygous animals are used, but also with the latter the results are far more accurate statistically. Diet and its relation to uniformity will be discussed.

CHURCH & DWIGHT COMPANY, INC.

NEW YORK, N. Y. No. 32

Twenty-five years before the first meeting of The American Public Health Association, Church and Dwight Company pioneered in first producing Bicarbonate of Soda in the Western Hemisphere.

For nearly a century, this company has endeavored to make this important product available at **low cost.**

Today, Arm & Hammer Bicarbonate of Soda, known generally as Baking Soda, can be found in nearly every household. The low cost, purity, and availability of Arm & Hammer, and the fact that it is approved as a dentifrice by the American Dental Association Council, are reasons so many Health Officers recommend it in their Dental Health Educational work.

CLAY-ADAMS COMPANY, INC.

NEW YORK, N. Y. No. 64

Laboratory Instruments and Supplies including the cardboard slide mailers, centrifuges, blood and other counters, Gold Seal slides and cover glasses, agglutination slides, slide boxes and specialties for microscopy and laboratory use will be displayed.

Also Educational Material including anatomical charts, skeletons, demonstration skulls, Ayers and other obstetrical manikins, Chase Hospital Dolls. Medical and Surgical Specialties including Cacoprene (synthetic rubber) catheters, drains, tubes, utility forceps, Justrite Elastic Dressing, and Fracture Splints are included in the exhibit and a Medichrome Library of 2 in. x 2 in. Kodachromes on medical and nursing subjects including tropical medicine, normal histology, nursing procedures, and others.

THE COCA-COLA COMPANY

ATLANTA, GA. Nos. 28 AND 29

Coca-Cola will be served to the delegates with the compliments of The Coca-Cola Company.

CORNING GLASS WORKS

CORNING, N. Y. No. 40

The Corning Glass Works will display various types of Laboratory Glassware mounted on a suitable panel. This exhibit will include "Pyrex" Brand Blood Gas Apparatus, Centrifuge Tubes and Bottles, Culture Dishes, Tubes and Flasks, Pipettes, and Blood Bank Bottle. A few samples of "Pyrex" Brand Lifetime Red Low Actinic Ware, "Pyrex" Brand Fritted Ware and "Vycor" Brand Ware Fabricated of 96% Silica Glass No. 790, will also be shown.

THE CREAM OF WHEAT CORPORATION

MINNEAPOLIS, MINN. No. 17

Both Enriched 5-Minute and Regular Cream of Wheat will be on display. A convenient and completely revised Vitamin chart and Recipes for the use of Cream of Wheat as a meat-extender will be available in quantities for class use.

Zing, stabilized wheat germ, will also be on display. It is made from high vitamin germ, requires no refrigeration, and is economically priced.

DIFCO LABORATORIES, INC.

DETROIT, MICH. Nos. 49 AND 50

This is an exhibit of dehydrated culture media prepared according to the formulae of the American Public Health Association's "Standard Methods of Water Analysis" and "Standard Methods for the Examination of Dairy Products," as well as other media of particular interest in public health bacteriology.

Bacto-S S Agar, Bacto-MacConkey Agar and other media for isolation and identification of members of the typhoid-paratyphoid-dysentery group will be demonstrated.

EFFERVESCENT PRODUCTS, INC.

ELKHART, IND. No. 10

Demonstration of urine-sugar analysis by the new Clinitest Tablet Method—reliable, simple, fast, single tests being made in less than one minute. A sensitive qualitative test giving dependable quantitative estimations up to 2%.

The same chemical principles involved in the standard copper-reduction methods are the basis of Clinitest—except external heat is eliminated as the Clinitest Tablet itself generates the required heat.

EIMER AND AMEND

NEW YORK, N. Y. No. 38

The major theme of the Eimer and Amend exhibit will be based on the reagents and apparatus necessary to carry through on the major important water analyses, as outlined in the A.P.H.A. Eighth Edition of Standard Methods for the Examination of Water and Sewage. This will include instrumental methods now in use in some water laboratories as well as specific reagents, such as standard soap solution, Nessler reagent, stable starch solution, E. & A. Karl Fisher Reagent solution, etc. A few selected modern, efficient laboratory instruments of use to clinical laboratories will also be on display and in operation.

EISELE & COMPANY

NASHVILLE, TENN. No. 37

Visit Booth No. 37 and see the new "Eisele Temp-Guard Baby Bottle" which will be on display. This bottle is designed to remove the guesswork from baby's feeding and to protect baby's health. Eisele & Company will also have on display their Clinical Thermometers including the glass case Self-Sterilizing Thermometer, Green Plungered Hypodermic Syringes, Hypodermic Needles, Eco Sanelastic Bandages, elastic without rubber, and other specialties.

J. H. EMERSON COMPANY

CAMBRIDGE, MASS. No. 22

The Emerson Resuscitator, Inhalator and Aspirator, in models suitable for use by Marine and other hospitals, industrials and the Armed Forces will be shown. Another feature will be the new Hot Pack apparatus for the rapid and neat preparation of all hot packs, which has received a wide acclamation in the hospital field. Also included will be the well known Emerson Respirator with its many features including the intermittent aspirator and automatic alarms.

EVAPORATED MILK ASSOCIATION

CHICAGO, ILL. No. 63

Visit the Evaporated Milk Association booth to inspect educational material for nutrition programs. Material covers infant feeding, preschool feeding, low-cost family feeding, and quantity food preparation for industrial feeding, school lunches, canteen feeding and related ac-

tivities. Registration at the booth will assure that sample copies will be sent to you. Members of the Association technical staff will be on hand to answer questions on evaporated milk nutritive properties, availability and uses—war and civilian.

FOLEY MANUFACTURING COMPANY

MINNEAPOLIS, MINN. No. 6

Representatives in Booth No. 6 will welcome an opportunity to demonstrate to members how practical the Foley Food Mill (declared a civilian essential) is for straining all fresh cooked vegetables and fruits for babies and adults on smooth diets. A special offer will be made to all members during the Convention.

GENERAL ELECTRIC X-RAY CORPORATION

CHICAGO, ILL. No. 55

Since mass x-ray chest surveys with miniature films is a widely discussed subject among public health authorities these days, may we suggest that you take opportunity during this meeting to discuss with us the G-E Photo-Roentgen Unit. You'll be interested in learning about the many G-E installations now operating in all sections of the country, not only in hospitals and clinics, but also in busses and trailers which make it possible to include conveniently the smallest outlying district in these surveys. Ask particularly about the 4 by 5-inch stereo chest films produced with this apparatus. And after you have seen them under illumination in the Orthostereoscope specially designed for this purpose, we're sure you will agree that this development for x-ray chest survey is a timely one and should greatly augment anti-tuberculosis field work.

GERBER PRODUCTS COMPANY

FREMONT, MICH. No. 15

Gerber's CEREAL FOOD and STRAINED OATMEAL, two special infant cereals, are thoroughly cooked, dried, and ready to serve merely upon addition of milk or formula. They are both fortified in not only thiamin but other members of the vitamin B complex and in iron. These, as well as the other Gerber Baby Foods will be on display. Literature for distribution to mothers and adults on restricted diets and also professional material are at the booth for your inspection.

THE GILLILAND LABORATORIES, INC.

MARIETTA, PA. No. 16

The Gilliland Laboratories will have on display at Booth No. 16 a complete line of Biological Products. This firm gives special attention to supplying Biological Products to State, City and County Boards of Health, Hospitals and Institutions. The representative in charge of this exhibit will be pleased to answer any inquiries.

GRADWOHL SCHOOL OF LABORATORY TECHNIQUE

ST. LOUIS, MO. No. 54

This exhibit is designed to show one of our teaching methods, namely, a descriptive cabinet on the mechanism of the Rh factor and its importance in blood transfusion. The exhibit will also include a number of high grade laboratory reagents, particularly Giemsa stain manufactured by this organization, a Commission-certified product.

INTERNATIONAL CELLUCOTTON PRODUCTS COMPANY

CHICAGO, ILL. No. 45

This exhibit will feature an up-to-the-minute program on menstrual education for women in industry.

For women workers: "That Day Is Here Again"—a 16 page illustrated booklet. Debunks old superstitions. Covers important Do's and Don'ts. Gives posture improving exercises. Stresses need for personal care.

For industrial nurses and advisers—Menstrual charts—a complete visual explanation of menstruation. Also: "Just to Review"—a technical explanation of menstruation—clear, modern, authoritative.

The International Cellucotton Products Company manufactures Kotex and Fibs.

KELLOGG COMPANY

BATTLE CREEK, MICH. No. 62

The Kel-Bowl-Pac now featured in the Kellogg Variety Package is an important addition to the snack menu and for the school lunch, because of its convenience. The PACKAGE is the BOWL!

All Kellogg ready-to-eat cereals either are made from whole grains or are restored to whole grain nutritive value. Kellogg's Pep Whole Wheat Flakes is fortified with extra vitamins B_1 and D. One serving (1 ounce) furnishes ¼ the daily requirements for adults for B_1 and sufficient vitamin D to meet all daily requirements for that vitamin.

KIMBLE GLASS COMPANY

VINELAND, N. J. No. 11

There will be shown Kimble Blue Line Exax and Normax Precision Retested graduated ware and Kimble ⛢ Brand laboratory glassware and apparatus.

Especially featured will be bottles and other glass parts for preparation and injection of parenterals, particularly *blood plasma*. These are highly resistant to chemical attack, offering maximum assurance of unimpaired quality and clinical safety.

All material obtainable from laboratory supply houses will be on display.

LEDERLE LABORATORIES, INC.

NEW YORK, N. Y. No. 3

Conforming with the general subject of American Public Health Association's Wartime Public Health Conference, Lederle Laboratories will feature in Booth No. 3 some of their outstanding products of special value in wartime.

The Vollmer Tuberculin Patch Test will be spotlighted. Other products to be featured are Blood Grouping Sera, used in identifying blood types for blood transfusions, Sulfadiazine, "The Drug of the Year," for infections, Tetanus Toxoid, Typhus Vaccine and Blood Plasma. Literature and samples which have to do with these products will be available through staff attendants at the Booth.

E. LEITZ, INC.

NEW YORK, N. Y. No. 41

Technical instruments which E. Leitz manufactures and distributes will be shown. One is Leitz Photo-Electric Clinical Colorimeter, widely used in hospitals, institutions, and by physicians for the accurate and quick quantitative determination of constituents of body fluids; another is the Leitz G & D Electro Titrator. This greatly facilitates the laboratory procedure. The principle it employs is that the end point is determined by a change in voltage of two suitably selected electrodes dipping into the solution which is being titrated, instead of being determined by a change of color of an indicator or of one of the reagents employed in the titration. There may also be available an instrument known as the Leitz Müller Photometer, a highly precise photo-electric research filter photometer which is easy to operate. The Leitz Desk Viewer for the viewing of 2 x 2″ Kodachrome slides and 35 mm. film strips, and also the VIII-S Projector for projecting 2 x 2″ slides and 35 mm. film strips, will be displayed, and, depending upon availability, Leica Camera equipment for macrophotography.

LILY-TULIP CUP CORPORATION

NEW YORK, N. Y. Nos. 59 AND 60

Lily-Tulip cups and containers have gone to war. This display is a pictorial review illustrating their economy and health protection value in the war effort—their use in mass feeding in the armed services, at post exchanges and ship's service, at service clubs, in hospitals, at shipyards and war production plants for feeding and safe water drinking—for food packaging, food rationing, and many other valuable uses important today.

J. B. LIPPINCOTT COMPANY

PHILADELPHIA, PA. No. 27

The exhibit of J. B. Lippincott Company will feature the new "Essentials of Industrial Health" by Dr. C. O. Sappington as well as another new and important work, "Essentials of Syphilology" by Dr. R. H. Kampmeier. Other important books on display will be Putnam's "Convulsive Seizures," a new manual for patients, the new second edition of Rigler's "Outline of Roentgen Diagnosis," Beardwood and Kelly's "Simplified Diabetic Management," and Girard's "Home Treatment of Spastic Paralysis." Be sure to see them.

LYONS ALPHA PRODUCTS CO., INC.

NEW YORK, N. Y. No. 34

The famous Lyons Sanitary Cream and Milk Dispensers "with the patented cream and milk faucets" will be exhibited. The outside body of these is white porcelain enamel; inside body, tinned copper. The cream dispenser is made from 6 quart to 20 quart size, and the milk dispensers from 6 to 40 quarts. The new Alpha 2 quart Cream Dispenser, and the Alpha Sterilizers will also be displayed.

THE MACMILLAN COMPANY

NEW YORK, N. Y. No. 53

Public Health Workers will find of special interest, at the Macmillan Booth 53, the new book by Dr. William R. P. Emerson, HEALTH FOR THE HAVING. It recommends itself as a valuable aid in public health work. Field workers and administrators alike look to COMMUNICABLE DISEASE CONTROL, by Anderson-Arnstein, and PUBLIC HEALTH ADMINISTRATION IN THE UNITED STATES, by Dr. Smillie, for answers on public health questions. Among other books will be the popular SO BUILD WE, by Mary S. Gardner, THE PUBLIC HEALTH NURSE IN ACTION, by Marguerite Wales, and RABIES, by Dr. Leslie T. Webster.

THE MAICO CO. INC. OF N. Y.

NEW YORK, N. Y. No. 39

The precision hearing test instruments used by Army, Navy, Airlines, and ear physicians for hearing tests and examinations will be displayed by the MAICO CO. which provides more than 90% of all these precision hearing test instruments used in America. The new HEARING DISABILITY CALCULATOR and Percentage of Loss Indicator, available to all visiting physicians and public health officials, provides a quick and ready means of calculating any individual's exact hearing disability in accordance with the official standards of the American Medical Association.

THE MEDICAL BUREAU

CHICAGO, ILL. No. 48

In Booth No. 48, M. Burneice Larson offers the facilities of the Medical Bureau, an organization acting as counselor in problems of medical personnel to physicians and executives in the medical, industrial, and public health fields. The records of physicians who have specialized in the various branches of medicine, or those who have completed their training recently, as well as the records of administrators, registered nurses, bacteriologists, scientific workers, social workers, and dietitians, are available to those interested in the completion or reorganization of their staffs.

MERCK & CO., INC.

RAHWAY, N. J. No. 8

A set of vitamin reviews in a convenient slip-cover container designed for ready reference in library or bookcase is available at the Merck booth. In addition, information and literature on the arsphenamines and tryparsamide may be obtained, and also a sample of *Cuprex*, widely used today for controlling the ever-present public health problem of pediculosis. A 15 minute application of Cuprex destroys the nits as well as the lice.

METROPOLITAN LIFE INSURANCE COMPANY

NEW YORK, N. Y. No. 46

The Welfare Division will maintain Consultation Headquarters in Booth 46. Members of its staff will be available for discussion of their special interests, and the use of the Company's health education materials. They hope not only to offer information but to receive suggestions from those active in these special fields and experienced in stimulating community action.

The subjects and times of the consultation periods are:

Rheumatic Fever Campaign, Monday P.M.; Nursing, Tuesday A.M.; Safety—"On and Off the Job," Tuesday P.M.; School Health Education, Wednesday A.M.; Industrial Hygiene, Wednesday P.M.; Community Health Campaigns—Films—Exhibits, Thursday A.M.; Nutrition, Thursday P.M.

MINE SAFETY APPLIANCES COMPANY

PITTSBURGH, PA. No. 35

In the M.S.A. booth, there will be featured a complete line of personal and plant protective equipment including: gas-detecting and indicating instruments; dust-sampling and counting instruments; dust, fume, and paint respirators; gas masks; oxygen breathing apparatus; inhalators; Skullgard protective hats; first aid kits and materials; goggles; asbestos and chrome leather protective clothing; Ear Defenders; Lilly Daché Hats for women industrial workers; Fend Barrier Protective Creams and Hand Lotions; Foille, the modern treatment for burns; and the Goggle Cleaning Station. M.S.A. representatives from both office and field will be in attendance to demonstrate this equipment and discuss your safety problems.

THE C. V. MOSBY COMPANY

ST. LOUIS, MO. No. 30

The C. V. Mosby Company extends to all attending the Wartime Conference of the American Public Health Association, a cordial invitation to look over its publications which will be on display at Booth No. 30. Books which will be of interest to public health workers include Turner "Personal and Community Health," Turner-McHose "Effective Living," Top "Handbook of Communicable Diseases," Lynch "Communicable Disease Nursing," and Cameron "Bacteriology of Public Health."

NATIONAL DAIRY COUNCIL

CHICAGO, ILL. Nos. 12 AND 13

Health education materials produced in the interest of nutrition in the war program are on display in the National Dairy Council booths—featuring information on the nutritive values of milk, ice cream, and the other dairy products. Posters and booklets which can be used in many phases of the public health program are available for examination. A catalogue of all materials will be sent to persons registering at the booth.

NATIONAL LIVE STOCK AND MEAT BOARD

CHICAGO, ILL. No. 61

The National Live Stock and Meat Board will have a nutrition exhibit showing the importance of meat in the adequate diet. Nutrition literature including the Nutrition Yardstick will be displayed.

OVAL WOOD DISH CORPORATION

TUPPER LAKE, N. Y. No. 9

Oval Wood Dish Corporation will again display in Booth 9 its complete line of RITESPOONS and RITEFORKS — sanitary single service eating utensils made of naturally pure wood. These spoons and forks are playing an important part in the sanitary feeding of defense workers in industrial plants throughout the country and in the feeding of our armed forces both here and abroad. They are considered one of the most outstanding single service items today. You are cordially invited to register for samples and literature.

PET MILK SALES CORPORATION

ST. LOUIS, MO. Nos. 69 AND 70

A complete display of material illustrating the time-saving Pet Milk services available to hospitals and physicians. Specially trained representatives will be in attendance to give you information about the production of Pet Milk and its use for infant feeding. Miniature cans will be given to members visiting the exhibit.

PARKE, DAVIS & COMPANY

DETROIT, MICH. No. 68

At the Parke-Davis Exhibit, which has been streamlined because of present wartime requirements, you will find many new and scientific Pharmaceutical and Biological Products. Included in this display are such outstanding preparations as Phemerol, a relatively non-toxic and non-irritating germicide and antiseptic; Vitamin Products; Sulfa Drugs; Despeciated Antitoxins, and numerous other outstanding products of timely interest. Able and courteous members of the Parke, Davis & Co. Staff are in daily attendance to serve you.

PETROGALAR LABORATORIES, INC.

CHICAGO, ILL. No. 7

You are cordially invited to visit the Petrogalar exhibit where a new and enlightening story on Petrogalar, an aqueous suspension of mineral oil, will be related. Beautifully colored anatomical drawings and new literature may be had upon request from our professional representatives who will be in constant attendance.

PHILIP MORRIS & CO., LTD., INC.

NEW YORK, N. Y. No. 31

Philip Morris & Company will demonstrate the method by which it was found that Philip Morris Cigarettes, in which diethylene glycol is used as the hygroscopic agent, are less irritating than other cigarettes. Their representative will be happy to discuss researches on this subject, and problems on the physiological effects of smoking.

POWERS X-RAY PRODUCTS, INC.

GLEN COVE, N. Y. No. 1

This exhibit features the Rapid Paper Film Method of X-raying chests of large groups of persons under the supervision of local physicians, without investment in chest x-ray equipment; demonstrates the diagnostic clarity of the 14 x 17 paper film in comparison with 14 x 17 transparent base film; and shows a typical roll of one hundred radiographs on a mechanical viewer.

THE PROCTER & GAMBLE COMPANY

CINCINNATI, OHIO No. 21

At the Procter & Gamble booth, visitors will see demonstrated some of the qualities of Ivory Soap which have resulted in Ivory's being recommended, "by more doctors than all other brands of soap together."

Copies of Ivory's new baby booklet, "Bathing Your Baby the Right Way," prepared with the coöperation of a world famous maternity center, will be available free of charge to visitors.

W. B. SAUNDERS COMPANY

PHILADELPHIA, PA. No. 14

The W. B. Saunders Company welcomes you to its exhibition at Booth No. 14 of its complete line of books on Medicine, Nursing, and Health. Among these will be new editions of McLester's Nutrition and Diet, Bower and Pilant's Communicable Diseases, Todd and Sanford's Clinical Diagnosis, and the following new books: the Military Medical and Surgical Manuals, the Manual of Industrial Hygiene, Stieglitz' Geriatric Medicine, and Vincent and Breckenridge's Child Development.

THE SEALRIGHT COMPANY, INC.

FULTON, N. Y. Nos. 42, 43 AND 44

"Milk Protection Is Health Protection" is the theme of Sealright's 1943 exhibit, which presents the sanitation reasons for sealing milk bottles with hoods which provide complete pouring lip protection. Also presented is the complete series of advertising messages currently sponsored by Sealright in national magazines, dramatizing outstanding accomplishments in public health achievements.

SEALTEST, INC.

NEW YORK, N. Y. Nos. 23 AND 24

The exhibit of Sealtest, Inc., a Division of National Dairy Products Corporation, will explain the work of this organization in dairy products research and inspection of ice cream, milk and dairy product production. The activities of the Sealtest Laboratory Kitchen, Consumer Service and Educational Department of Sealtest, Inc., in promoting the use of dairy products in the home will also be featured.

SHARP & DOHME

PHILADELPHIA, PA. Nos. 25 AND 26

Sharp & Dohme will have their display at Booths Nos. 25 and 26, featuring a new sulfonamide, Sulfamerazine 2-sulfanilamido -4- methylpyrimidine, "Sulfasuxidine" succinylsulfathiazole, "Lyovac" Normal Human Plasma, and biological products for active immunization. A cordial welcome awaits all visitors. Capable, well-informed representatives will be on hand to furnish information on Sharp & Dohme products.

E. R. SQUIBB & SONS

NEW YORK, N. Y. Nos. 65 AND 66

The exhibit of E. R. Squibb & Sons features the rôle that recently developed agents play in the conquest of the venereal diseases. Special emphasis will be given to Clorarsen, an effective antisyphilitic agent, Lygranum S. T. and Lygranum C. F., antigens of chick embryo origin for use in the skin test and complement-fixation test, respectively, for lymphogranuloma venereum. Information on the chemotherapeutic agents used in the treatment of gonorrhea will be included. Members of the medical and professional service staffs will be in attendance for consultation.

STANLEY SUPPLY CO.

NEW YORK, N. Y. No. 36

The improved Davidson Incubator for Premature Infants will be featured. This unit is completely oxygenated and humidified. Be sure and ask for a demonstration of the Davidson Incubator.

WALLACE & TIERNAN CO. INC.

NEWARK, N. J. No. 73

Because of war conditions the Wallace & Tiernan Exhibit will be confined to photographic displays of their various chlorinating and water treatment devices in actual use.

WHITE LABORATORIES, INC.

NEWARK, N. J. No. 5

Within recent years tremendous advances in vitamin research have added a wealth of clinical data to our knowledge of nutrition.

The intense interest of the laity in the vitamins—often, unfortunately, confused and misled by unauthoritative lay advertising and uninformed "information"—can be properly controlled by the physician's interpretation of the actual usefulness of the vitamins to his patients.

In Booth No. 5, White Laboratories, Inc., presents its complete line of ethically promoted, clinically reputable vitamin preparations. Qualified representatives are in attendance to discuss with you the use of White's products in vitamin prophylaxis and therapy. Descriptive literature is available for your review, and a cordial welcome awaits you.

WINTHROP CHEMICAL COMPANY, INC.

INDUSTRIAL DIVISION

NEW YORK, N. Y. No. 47

Headquarters for information concerning ROCCAL and allied cationic, germicidal detergents. Increased use of ROCCAL during the past two years in food processing plants, dairies, restaurants, and in many other applications, has given a fund of new data which should be of interest to every health officer and sanitarian.

Technical attendants at the booth will be very happy to discuss bacterial problems and make specific recommendations for solving these problems through the use of cationic detergents.

WYANDOTTE CHEMICALS CORPORATION

WYANDOTTE, MICH. No. 20

The same safe, speedy Wyandotte Products used by the Armed Forces will be featured. Wyandotte Steri-Chlor for germicidal operations; Wyandotte G.L.X. for equipment cleaning; Wyandotte Canners Alkali for alkaline peeling before dehydration; Wyandotte Alkalies for bottle washing; Wyandotte Keego, Cherokee, and Poma for dishwashing operations; Wyandotte Calcium Chloride for dustlaying.

The following Wyandotte Representatives will attend: V. R. Jones and P. W. Soderberg of the home office, Sales and Technical Service, Wyandotte; and A. J. Bettelheim of the New York office.

AMERICAN PUBLIC HEALTH ASSOCIATION BOOK EXHIBIT

CONDUCTED BY THE NATIONAL HEALTH LIBRARY FOR THE A.P.H.A. BOOK SERVICE

CONFERENCE ROOM 7

There will be on display several hundred of the newer public health books of all publishers. Books in all public health categories will be included, classified under the following heads:

Preventive Medicine and Public Health Laboratory
Food and Nutrition
Vital Statistics
Public Health Engineering
Industrial Hygiene
Mental Hygiene
Social Hygiene and Eugenics
Tuberculosis
Personal Hygiene
Child, Maternity and School Hygiene
Health Education
Nursing
Reference, Medical History, etc.
A.P.H.A. Publications

A five-foot shelf of basic books for public health workers will be featured. Members of the National Health Library staff will be on hand to answer questions, to make recommendations, and to provide information about books, the A.P.H.A. Book Service, and about the National Health Library Services.

HEALTH EDUCATION CENTER

CONFERENCE ROOM 8

The Health Education Center will be conducted again this year by the National Publicity Council for Health and Welfare Services (formerly Social Work Publicity Council). The Center will be open to all delegates for study and consultation.

A library of indexed portfolios will be at hand containing outstanding examples of all types of health educational material: folders, pamphlets, radio scripts, annual reports, photographs, bulletins, and news releases.

Some of the portfolios will contain a miscellany of material in a particular medium. But a majority of them will contain collections of material in every medium on subjects that relate directly to the major topics of discussion at the conference. Sample titles are: "Rationing and Its Effect on the Diets of Mothers and Children," "The Community's Responsibility for Adequate Sanitation Measures," "Diseases of Special Importance in Wartime." Wherever possible, portfolios will not only contain samples of printed publicity materials, but will also include descriptions of how communities were organized for special projects in health education, with statements of how the printed materials were distributed and used.

In addition to the portfolios on display at the Health Education Center, the Publicity Council's entire library at its New York offices will be available to delegates. This library contains samples of publicity and health education material in every medium, and on every subject of interest to health and welfare agencies. Details of these collections may be had at the Health Education Center or by writing in advance to The National Publicity Council, 130 East 22nd Street, New York, N. Y.

Health education experts will be on hand at the Center for consultation with delegates on the particular problems of their communities.

EMPLOYMENT SERVICE

The Association Employment Service seeks to bring to the attention of appointing officers the names of qualified public health personnel and to act as a clearinghouse on employment. This is a service of the Association conducted without expense to the employer or employee.

From the registry of persons available, selected announcements are published from time to time. Appointing officers may obtain lists of all registrants on request.

Address all correspondence to the Employment Service, American Public Health Association, 1790 Broadway, New York 19, N. Y.

POSITIONS AVAILABLE

CAREER OPPORTUNITIES IN PENNSYLVANIA

Charles B. Frasher, Merit System Supervisor, Pennsylvania State Department of Health, 207 Blackstone Building, Harrisburg, announces that appointments will soon be made in the following branches of the State Health Department of Pennsylvania: Health Conservation, Tuberculosis Control, Venereal Disease Control, Pneumonia Control, Industrial Hygiene, Narcotic Drug Control, Environmental Hygiene, Public Health Laboratories, Maternal and Child Health Services, Crippled Children's Services, School Medical Inspection, Dental, Nutrition, Milk Sanitation, Public Health Education, Sanitary Engineering, Vital Statistics, Public Health Nursing, Accounts, Biologicals and Supplies, Merit System, Tuberculosis Sanatoria. Open competitive examinations will be held and the resulting lists are expected to be in existence for 2 years or longer. Residence requirements are waived for professional positions.

Tuberculosis Association in large eastern city will accept applications for position on staff as statistical research secretary. Requirements: basic training in vital statistics, ability to plan and carry out statistical studies in the field of public health. One month's vacation. Five day week, with occasional work on Saturdays. Address **Box C,** Employment Service, A.P.H.A.

Council of Social Agencies in large Midwestern city is seeking person to fill position of assistant secretary in its health division. Responsibilities include coördinating, planning, and promoting of adequate community health services. Involves working with medical and health agencies and organizations and with committees. Beginning salary $3,000. Applications should indicate training and experience and references. **Box R,** Employment Service, A.P.H.A.

THE MERIT SYSTEM COUNCIL OF WEST VIRGINIA ANNOUNCES UNASSEMBLED EXAMINATIONS FOR THE FOLLOWING POSITIONS IN THE WEST VIRGINIA STATE HEALTH DEPARTMENT

Position	*Salary*
Director of Maternal and Child Hygiene	$4,200–$4,800
Assistant Director, Maternal and Child Hygiene	3,840– 4,500
Director, Industrial Hygiene	4,200– 4,800
Director, Vital Statistics	4,200– 4,800
Director, Communicable Diseases	4,200– 4,800
Assistant Director of Communicable Diseases (Tuberculosis)	3,840– 4,500
Assistant Director of Communicable Diseases (Venereal Disease)	3,840– 4,500
Venereal Disease Consultant	3,840– 4,500
Director, Bureau of Dental Hygiene	3,840– 4,500
Director of County Health Work	4,200– 4,800
Senior Health Officer	3,840– 4,500
Junior Health Officer	3,360– 3,840
Health Officer Trainee	2,400
Assistant Director, Hygienic Laboratory	2,640– 3,240
Senior Bacteriologist	1,800– 2,400
Senior Serologist	1,800– 2,400
Consultant Nurse in Special Fields	2,400– 3,000
Public Health Nursing Supervisor (State level)	1,920– 2,400
Public Health Nursing Supervisor (Local level)	1,800– 2,040
Chief of Medical Services	4,800– 5,280

Persons interested should make application to the Merit System Council, 212 Atlas Building, Charleston, W. Va.

Residence in West Virginia has been waived. Applications will be accepted continuously.

Wanted: Two physicians, immediate appointment, full-time venereal disease

clinician, conduct several small clinics rotating schedule. Experience preferred. Salary $3,600 plus actual expense not to exceed $1,200. Write State Health Department, Santa Fe, New Mexico.

Announcement is made of the following examinations to be held by the State Personnel Board, Seattle, Wash., for positions in the State Department of Health and County Health Departments:

Position	*Salary Range Entrance*	*Maximum*
Bacteriologist B.....	$160	$190
Laboratory Helper D...	120	140
Laboratory Assistant C	140	160
Laboratory Technician	140	170
District Public Health Officer V	380	440
Public Health Nurse B	160	190
Asst. Venereal Disease Investigator B	160	190
General Sanitarian A...	190	220
Milk Sanitarian A.....	190	220
Chief of Public Health Education	280	320
Senior Milk Sanitarian..	220	250
Obstetric Consultant VI	440	500
Pediatric Consultant VI	440	500
Senior Bacteriologist A	190	220

The Board of Health, Territory of Hawaii, announces applications will be received for positions as Medical Technician in their public health laboratories. The positions: Civil Service Classifications, SP-5, salary range $154.17 to $192.92 per month; SP-6, $172.50 to $217.50 per month, subject to retirement deductions under Hawaiian Civil Service System, plus graded bonus for the period of time such bonus remains in effect for Territorial Government employees.

Interested persons may make written application to Board of Health, Territory of Hawaii, P. O. Box 3378, Honolulu, T. H.

Wanted: Laboratory technician, tuberculosis hospital, 130–150 beds. Salary $175 per month and full maintenance. Opportunity to do research. Nice surroundings, good living quarters. Write Dr. Paul D. Crimm, Boehne Hospital, Evansville, Ind.

Physician—public health pediatrics. To assist director of maternal and child health in large California County Health Department. Major duties, conducting of infant and preschool health conferences and school examinations. Beginning salary $350 and travel allowance. California license required. Training and experience in pediatrics or public health or both. Immediately available. Address William C. Buss, M.D., Kern County Health Department, Bakersfield, Calif.

Wanted: A physician trained in tuberculosis to assume administrative control of the Bureau of Tuberculosis in an eastern city of 200,000 population. Salary $3,900–$4,500 plus cost of living adjustment. Address **Box B,** Employment Service, A.P.H.A.

Wanted: Competent, thoroughly trained bacteriologist, woman or draft exempt man to take complete charge of splendidly equipped small industrial laboratory, Connecticut location, country environment, pleasant surroundings, excellent working and living conditions. Must have Ph.D. training or equivalent. Apply **Box D,** Employment Service, A.P.H.A.

Merit System for Personnel Administration in Delaware will set examinations for 3 positions in the Delaware State Board of Health this summer. The positions open for examination, together with the beginning salaries, are: Deputy State (County) Health Officer ($3,800), Pediatrician ($3,600), and Medical Social Consultant ($2,400).

These examinations will be unassembled, but successful candidates will be expected to appear in Delaware for an oral interview which will be a weighted part of the examination. Appointments may be expected soon after examinations are conducted.

Information and specifications as prepared for each position may be secured by communication with the Merit System Supervisor, Post Office Box 1911, Wilmington, Del. and application for examination must be made on the official form.

Sanitarian wanted: Preferably with Bachelor's degree or engineering degree, plus public health experience or training. Must have own car. Applicant with lower qualifications will be offered an opportunity to take a short, free indoctrination course. Salary $1,920 per year with travel allowance of $50 per month, if qualified. Apply Dist. Dept. of Health No. 6, Central Office, Newberry, Mich., Dr. Franklin.

FOR OTHER POSITIONS AVAILABLE WRITE EMPLOYMENT SERVICE, AMERICAN PUBLIC HEALTH ASSOCIATION, 1790 BROADWAY, NEW YORK 19, N. Y.

In view of the current active demand for trained and experienced persons in public health it is suggested that prospective employers communicate directly with the Employment Service, American Public Health Association, 1790 Broadway, New York, N. Y., for up-to-date lists of applicants.

POSITIONS WANTED

Physician, M.D. Yale, with private practice industrial medicine. Age 39 and draft exempt. Seeks opportunity as public health physician. **A-505**

Physician, M.D. University of Arkansas, M.P.H. Harvard, experienced as county health officer. Age 35. Will consider position as city or county health officer or director of a bureau. **A-506**

Woman physician, well prepared in pediatrics, M.S.P.H. DeLamar Institute, Columbia University, 1943, seeks employment in the field of maternal and child health, preferably administrative in pediatrics. Excellent references. **A-507**

Bacteriologist, 28, Iowa State College, draft immune, 3 years' experience public health laboratory. Experience in investigation and control activities on water, sewage and sanitation, as chemist and bacteriologist and serologist in syphilis and enteric diseases. **L-465**

Advertisement

Opportunities

WANTED—(a) Visiting nurses; must be interested in developing visiting nurse program; industrial city of about 150,000 population; efficient health department with staff of 23 nurses to carry on generalized program including inside nursing in emergencies; Middle West. (b) Public health nurses; generalized nursing program; district includes two public schools, dental clinic, infant and maternal service; town of 35,000 not far from Chicago; 10 month year; $170 monthly. (c) Public health nurse for important position with large industrial company; Middle West. (d) Certified public health nurse; clinic and field work—largely with children; $165; Chicago area. (e) Nurses for mobile unit visiting various communities to collect blood for blood and plasma program of state department of health; five day week; $155, plus traveling expenses; Middle West. (f) Public health nurses; generalized program; vicinity Washington, D. C. PH8–1. Medical Bureau (Burneice Larson, Director), Palmolive Building, Chicago.

WANTED—(a) Pediatrician; county public health department; duties include routine school examinations and assisting in general pediatric program; California. (b) Clinician; venereal disease program, southern metropolis; opportunity for securing excellent experience in dermatology, syphilology, and administrative problems connected with venereal disease program. (c) Public health physician to direct department of maternal and child health; central metropolis; immediately. (d) Wowan physician; student health department; young women's college; $300; opportunity for developing excellent health program; South. (e) Physician well trained in public health education; appointment as assistant director of school health service; Central metropolis. (f) Student health appointment; health service includes six physicians; duties consist of general practice, health examinations, consultation and counselling. (g) Physician; part-time student health appointment; opportunity for specializing in public health or some other clinical field. (h) Student health physician; state university; large enrollment of Army and Navy trainees; Midwest. (i) Staff appointment, public schools; town of 70,000; New England; $3,700. (j) Epidemiologist, venereal disease program; appointment offers university affiliation; South. PH8–2, Medical Bureau (Burneice Larson, Director) Palmolive Building, Chicago.

Situations Wanted

PUBLIC HEALTH PHYSICIAN—B.S., M.D. degrees, eastern schools; C.P.H., Johns Hopkins; four years, health commissioner midwestern city of 60,000; three years, head department of health and physical education, state university; four years, assistant commissioner, state health department. PH8–6. For further information, please write Burneice Larson, Director, The Medical Bureau, Palmolive Building, Chicago.

PUBLIC HEALTH NURSE—Is available for executive appointment; bachelor of science and master of public health degrees; state university; eight years' executive industrial nurse, large industrial company; two years executive public health nurse. PH8–3. For further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago.

PUBLIC HEALTH NURSE—Is available for executive position; B.S. degree Columbia; three years, supervising nurse, state department of health; five years, field supervisor, large industrial company; four years, educational director, public health department, college of nursing. PH8–4. For further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago.

BACTERIOLOGIST—B.S., M.D., D.Sc. degrees, with majors in bacteriology; certificate in public health, eastern university; several years' teaching experience, including professorship in bacteriology and pathology; able lecturer; now interested in public health appointment. PH8–5. For further information, please write Burneice Larson, Director, The Medical Bureau, Palmolive Building, Chicago.

NEWS FROM THE FIELD

PROVISIONAL BIRTH AND DEATH RATES FOR MAY

The Bureau of the Census, Washington, on July 12 released figures based on reports from 42 states and the District of Columbia indicating birth rates of 20.3 for May, 1943, as against 19.4 for May, 1942. The death rates respectively were 10.5 and 10.0. The infant mortality rate for 40 states and the District of Columbia was 37.1 per 1,000 live births for May and 5.6 per cent lower than the rate for the corresponding month of 1942. For the first 5 months of 1943 the infant mortality rate is computed as 42.5 as compared with 44.7 for the corresponding part of 1942.

Commenting on the causes for the rise in the crude death rate, the bureau states that, although exact information as to the causes is not available, an analysis of a 10 per cent sample of death certificates indicates that the rise is attributable in a large measure to deaths from diseases of older ages, namely the cardiovascular-renal diseases. Also the mortality has been higher than expected for the group of death causes including the prevalent diseases of childhood and for accidents, exclusive of motor vehicle accidents.

A COUNTY PROGRAM FOR THE PREVENTION OF DEAFNESS

According to Dr. Robert H. Riley, Director of the Maryland State Department of Health, Baltimore, Washington County, Md., has inaugurated a program for the prevention of deafness. This program was made possible through a special grant of aid to the Services for Crippled Children, Maryland State Health Department, by the U. S. Children's Bureau. Previous surveys of school children conducted in Washington County by the Board of Education and the County Health Department revealed that 2.5 per cent of the school children in Washington County had some impairment of hearing. The present program will augment the limited facilities for otolaryngology in the community and will provide for radon therapy for adenoid tissue. The objectives of the program are: (1) Education of parents in the necessity for proper medical care for children with acute otitis media. It is planned to attain this objective through Parent-Teacher Associations, distribution of pamphlets, newspapers, preschool and school medical conferences and home nursing visits. (2) Testing of hearing in public and parochial schools. Children found with impaired hearing will be referred to the clinic. The screening test will be performed by a trained technician from the Frederick School for the Deaf. (3) Regular ear, nose, and throat clinics will be conducted by Dr. Donald F. Proctor from the Johns Hopkins Ear, Nose and Throat Clinic. Special treatment, such as tonsil and adenoid operation and mastoid operations will be done at the Washington County Hospital.

This program is under the direct supervision of Dr. W. R. Willard, County Health Officer, and has the full approval of the County Medical Society. It is a coöperative study by health agencies and medical societies and state board of education, and the private physician has an active part in the program. This program is proving to be one of the most popular programs conducted in the county.

MAINTAINING STANDARDS OF QUALITY AND SANITARY REGULATIONS FOR FOOD

The Association of Food and Drug Officials of the United States meeting recently in Denver announced that the Association is opposed to the principle of the lowering of standards of quality and sanitary regulations governing the production, processing, selling, and distribution of foods and food products which prevailed in the respective jurisdictions prior to the present emergency. The resolution was based on the conviction that in certain sections of the country concerted efforts have been made to lower the standards of quality and sanitary regulations governing the production, processing, selling, and distribution of foods and food products.

DR. VONDERLEHR APPOINTED TO PUERTO RICO AND VIRGIN ISLAND POST

Raymond A. Vonderlehr, M.D., who for 8 years has served as Assistant Surgeon General in charge of the Division of Venereal Diseases of the U. S. Public Health Service, has been appointed, as of July 12, Director of District 6 of the U. S. Public Health Service covering Puerto Rico and the Virgin Islands. Dr. Parran, the Surgeon General, has pointed out that

> . . . while serving as Assistant Surgeon General Dr. Vonderlehr has seen the national effort against the venereal diseases expand from a rear-guard action with limited funds and personnel to an all-out attack in every state, in every large city and in a majority of rural counties. The stimulus of the Venereal Disease Control Act of 1938 has resulted in a nation-wide expansion of facilities and services for the eradication of syphilis and gonorrhea. Appropriations from all sources for venereal disease control work have increased from a few hundred thousand dollars in 1935 to over 18 million dollars in 1943.

Succeeding Dr. Vonderlehr, the appointment of Dr. J. R. Heller, Jr., as Assistant Surgeon General has been announced. Dr. Heller joined the regular corps of the Public Health Service in 1934, has served in charge of venereal disease activities with headquarters in New Orleans, La., and more recently has been serving as assistant chief of the States Relations Division of the Public Health Service.

DESIGN FOR A HEALTH FLAG

William S. Bailey, Health Officer of Irvington, N. J., has announced that he has obtained Letters Patent for a design for a health flag symbolizing the health movement.

The design consists of a blue background on which a white cross is imposed and over which a red letter H is superimposed.

It is understood that Mr. Bailey plans to make the flag available through arrangements with a manufacturer.

THE LESLIE DANA GOLD MEDAL AWARDED TO DR. LANCASTER

The National Society for the Prevention of Blindness has announced that the Leslie Dana Gold Medal, awarded annually for outstanding achievements in the prevention of blindness and conservation of vision, will be presented this year to Dr. Walter B. Lancaster of Boston. The selection was made by the St. Louis Society for the Blind, upon recommendation of the Association for Research in Ophthalmology.

Although 80 years of age Dr. Lancaster is said still to be active in his practice as an ophthalmologist in Boston and vicinity where he has rendered long service in this field.

NATIONAL HEALTH LIBRARY APPOINTS NEW LIBRARIAN

The National Health Library, which is located at 1790 Broadway, New York, N. Y., and which is jointly maintained by the agencies in the National Health Council, has announced the retirement as of July 1 of Isobel L. Towner who has been librarian since

1936. Succeeding Miss Towner the appointment of Eva R. Hawkins has been announced as librarian. Mrs. Hawkins has served as associate librarian for several years.

The attention of members and Fellows of the American Public Health Association is called to the fact that, by virtue of their membership, they are entitled to free access to the library and to counsel with the library staff.

CONFERENCE ON ORTHOPEDIC NURSING

Plans are being completed for the three-session group conference on orthopedic nursing to be held October 11 in New York, N. Y., preceding the Wartime Conference of the American Public Health Association. This conference is being planned primarily for nurses actively engaged in orthopedic services. Discussion will center around plans for future adjustments in orthopedic programs.

Morning session 9:30–12:00—"Teaching Responsibilities of the Orthopedic Public Health Nurse"

Afternoon session 2:00–4:30—"Nursing Problems in the Care of Patients with War Injuries"

Evening session 7:30–9:30—"Orthopedic Disabilities of Workers in Industry"

The morning session, because of informal discussion, will be limited to 30. There will be no restrictions on the afternoon and evening sessions.

The conference will be held in the Henry Street Auditorium, 262 Madison Avenue, New York, N. Y. Registration will close October 1 and applications should be sent to Jessie L. Stevenson, Consultant in Orthopedic Nursing, Joint Orthopedic Nursing Advisory Service, 1790 Broadway, New York 19, N. Y.

CHANGES AT GENEVA EXPERIMENT STATION

Dr. Carl E. Ladd of Cornell University, Ithaca, N. Y., shortly before his death, announced that the dairy work at the experiment station at Geneva is to be discontinued and the herd eventually disposed of. Dr. Ladd explained that budget-making officials of the state have believed that maintenance of herds at both Geneva and Ithaca was uneconomical. The termination of the research at the Geneva institution, which has been a leading dairy research institution among those in North America for many years, is understood not to affect the status of Dr. Robert S. Breed, who has long occupied the position of Chief In Research. Dr. Breed will continue at Geneva until retirement.

Dr. Ladd announced that the experiment station at Geneva will be developed and enlarged as a horticultural research institution. "Any disruption of long established lines of endeavor at an institution like the experiment station is bound to be disturbing, especially so to the individuals concerned. We must be realistic about such things, however, and when readjustments have to be made it is necessary to think in terms of the whole rather than a part. Those of us at Cornell who are charged with the administration of the experiment station at Geneva are definitely committed to a program of expension of the work of the station along certain well defined lines."

KANSAS PUBLIC HEALTH ASSOCIATION MEETING

The Annual Meeting of the Kansas Public Health Association held in June in Emporia centered around wartime public health problems. Among the speakers from out of the state there were, from the staff of the U. S. Public Health Service, Dr. Joseph W. Mountin, Dr. L. E. Burney, Dr. Maurice A. Roe, Lilly Hagerman, R.N., and O. C. Hopkins, Sanitary Engineer; from the Children's Bureau Dr. Hester B. Curtis and Jane Nicholson, R.N.

The election of the following officers was announced: Dr. D. D. Carr, To-

peka-Shawnee County Health Officer, *President;* Dr. Henry H. Asher, Director Local Health Services, Kansas State Board of Health, *President-elect;* Janet Tidrick, R.N., Nurse Consultant, Kansas State Board of Health, *Vice-president;* Dr. Fred Mayes, Director Child Hygiene Division, Kansas State Board of Health, *Secretary;* Dr. F. C. Beelman, Secretary and Executive Officer, Kansas State Board of Health, *Treasurer.* The Executive Committee includes: Dr. John W. Turner, Wichita-Sedgwick County Health Officer; Dr. Charles A. Hunter, Director Public Health Laboratories, Kansas State Board of Health; and Ruth Henton, R.N., Ilathe, Johnson County Public Health Nurse.

CORRECTION

In the article, "Some Epidemiological Aspects of Tuberculosis Determined by Analysis of Sanatorium Records," appearing in July JOURNAL:

Table 7, page 785, should read:

Age Group	$\frac{\textit{Cases}}{\textit{Population}} \times 100$
0–14	.017
15–19	.067
20–24	.116
25+	.095
Total	.082

Last paragraph, page 784, should read:

In the age groups 0–14 and 15–19 the rates are approximately 19 and 26 times greater in the clinic population than in the general population; in older ages the rate in the clinic population is 8 to 9 times as great as that in the general population.

Conclusion 3, page 792, should read:

Practically all cases of tuberculosis are diagnosed on single examination; the rate of development of tuberculosis in patients negative on initial examination is 9 times as great as that in the general population. ROY M. SEIDEMAN, M.D.

OCD URGES RECOGNITION OF HEALTH OFFICIALS IN CIVILIAN PROTECTION ORGANIZATION

Operations Letter No. 131, of the Office of Civilian Defense, entitled "The Health Department in Civilian Protection" urges the appointment of health officers to the U. S. Defense Corps. Health officers, with their deputies, division chiefs, and sanitary inspectors, should be members of the U. S. Citizens Defense Corps in order that health and sanitation may be maintained during and after an air raid or other wartime disaster, it is stated.

Plans should be developed by health officers to assure maintenance of safe water, food, and milk supplies, disposal of wastes, sanitation at mass feeding centers, and control of communicable diseases. The *Operations Letter* recommends that health officers select volunteer health deputies for appointment to the staff unit of the Citizens Defense Corps in communities where the health department does not have sufficient personnel to provide sanitary supervision and inspection services in a war emergency.

All health department personnel must complete training in accordance with regulations of the Citizens Defense Corps before they can become members.

DR. ARTHUR THOMAS MC CORMACK DIES

Arthur T. McCormack, M.D., State Health Commissioner and Secretary of the Kentucky State Board of Health, died on August 6 in Louisville of a heart attack. He was 70 years old.

A graduate of the College of Physicians and Surgeons at Columbia University in 1896, Dr. McCormack devoted his career to public health. He became Secretary of the State Board of Health in 1912, succeeding his father, the late Dr. Joseph Nathaniel McCormack. He founded *The Kentucky Medical Journal* in 1901 and was editor and director thereafter. He organized

the School of Public Health at the University of Louisville and was its first dean. He was secretary of the Kentucky State Medical Association for more than 25 years.

Dr. McCormack was elected to membership in the American Public Health Association in 1919, to Fellowship in 1923, and to Life Membership in 1933. He served as a member of the Governing Council and of the Executive Board from 1928 to 1932. He was a Vice-President of the Association in 1933, became President-Elect in 1937, and was inducted into office as President in 1938.

TWO HOLDERS OF FORTY YEAR MEMBERSHIP CERTIFICATES DIE

The deaths of Robert Spurr Weston and John Watson Alvord, both members of forty years' standing in the Association, are regretfully recorded. Both were Consulting Engineers. Both rendered notable service throughout their long professional careers to hundreds of American communities.

Robert Spurr Weston took his degree of Bachelor of Science in 1891, and of Master of Arts in 1894 at Amherst College. Thereafter, he studied at Massachusetts Institute of Technology and at the University of Berlin. From 1912 as a member of the firm of Weston and Sampson, he served states, cities and towns in connection with water supply, water purification, stream pollution, sewerage, sewage and industrial waste treatment. He had been Vice-President of the American Society of Civil Engineers, President of the American Water Works Association, and President of the American Public Works Association. Mr. Weston was elected to membership in the American Public Health Association in 1896 and to Fellowship in 1922. He served as Vice-Chairman of the Engineering Section in 1913 and as Chairman in 1914. He was a member of the Governing Council from 1924–1927 and was elected Vice-President of the Association in 1932.

John Watson Alvord was educated at Harvard University Preparatory School and J. W. Hunt's Normal School, Washington. He was awarded an Honorary Degree in Civil Engineering by the University of Wisconsin in 1913. He was a consulting engineer since 1894 to over 300 municipalities on sewerage works, water supply and water power, sewage disposal and appraisal boards. He was President of the American Water Works Association and a member of many engineering societies. Mr. Alvord joined the Association in 1899 and was a Charter Fellow.

SAVEL ZIMAND NAMED ACTING DIRECTOR OF THE BUREAU OF HEALTH EDUCATION, NEW YORK CITY DEPARTMENT OF HEALTH

Savel Zimand, who has been an administrative assistant in the New York City Health Department for 9 years has been designated by Health Commissioner Ernest L. Stebbins to be Acting Director of the Bureau of Health Education. Mr. Zimand, recently assigned to the bureau, succeeds Dr. Charles F. Bolduan, first director of the bureau and its head for many years until his retirement in August.

For six years previous to 1934, Mr. Zimand was administrative director of the Bellevue-Yorkville Health Demonstration.

WAR MANPOWER COMMISSION SAFEGUARDS CIVILIAN NURSING

Paul V. McNutt, Chairman of the War Manpower Commission, announced on July 26 that nurses must be declared nonessential in civilian service before they can be recruited for the armed services.

Mr. McNutt stated that the Nursing Supply and Distribution Unit has become the Nursing Division of the Com-

mission's Procurement and Assignment Service with the same objectives as the divisions of the Procurement and Assignment Service now dealing with dentists, veterinarians, physicians, and sanitary engineers. They involve the recruitment of sufficient nurses to meet the needs of the armed forces and the provision of minimum adequate nursing care for the civilian population.

Recruiting of graduate nurses for the armed services will continue to be handled by the Red Cross, and recruiting of cadet nurses by the U. S. Public Health Service.

The function of the WMC is to determine whether a nurse may be released for military service, and to see that those who remain at home are so distributed as to provide adequate care for civilians.

I. Louise Baker, R.N., has been named assistant to Dr. Maxwell Lapham, executive officer of the Procurement and Assignment Service. She will be assisted by Ruth A. Heintzelman, R.N.

A.M.A. HEALTH EDUCATION

From August 2 through August 6, 29 graduate students under fellowships from the W. K. Kellogg Foundation and the supervision of the U. S. Public Health Service, spent a week of intensive observation, study and demonstration of the health education and related work of the American Medical Association at the Association's headquarters' building in Chicago.

The history, organization, and work of the association were presented in detail as well as the work of each department.

Each student was furnished with an extensive collection of reference materials and each was given opportunity for personal consultation with the head of that association department whose work most interested the student.

THE SCIENCE MOBILIZATION BILL (S. 702)

This bill, which was introduced into the Senate by Senator H. M. Kilgore, has had extended examination by the American Association for the Advancement of Science, with which the American Public Health Association stands in an affiliated relationship. Dr. Isaiah Bowman, President of the A.A.A.S., has announced that the association, through its Council, has gone on record by a vote of 146 to 5 opposing the bill according to the following statement.

After careful consideration of the purposes and provisions of the Science Mobilization Bill (S. 702), the American Association for the Advancement of Science, an organization of nearly 25,000 members (and having 187 associated and affiliated societies with a combined membership of over 500,000 persons whose interests cover broadly all the natural and social sciences) now, through its Council of about 250 members chosen from among the leaders of American science, respectfully recommends to the Senate and to the House of Representatives of the United States that the Kilgore Bill (S. 702) be not passed either in its present form or in any other form containing similar provisions.

The A.P.H.A. representatives on the A.A.A.S. Council are Abel Wolman, Dr.Eng., Chairman of the Executive Board, and Reginald M. Atwater, M.D., Executive Secretary.

Central States

LEONARD C. BATE, M.D., of Stambaugh, Mich., Director of the Iron County Health Department, was placed in charge of the unit in Ontonagon County, effective June 1. The central office of the two counties will be maintained in Stambaugh, with a branch in Ontonagon.

MARY P. CONNOLLY,* Director of Health Education for the Department of Health of Detroit, Mich., has retired after 25 years' service.

CLIFFORD C. CORKILL, M.D.,† resigned as head of the Menominee County Health Department, Menominee,

Mich., effective July 1, to enter private practice.

MADELENE M. DONNELLY, M.D., has been named Director of Health District No. 7, comprising Clare, Gladwin, and Arenac Counties, following the vacancy that occurred with the transfer of HELEN P. LANTING, M.D., M.S.P.H.,† of Gladwin, Mich., to a similar position in the Shiawassee County Health District.

STEPHEN E. GAVIN, M.D., of Fond du Lac, Wisc., has been appointed a member of the Wisconsin State Board of Health for a term expiring in 1950.

RUTH E. GROUT, PH.D.,* Minneapolis, has joined the faculty of the University of Minnesota as associate professor in the Department of Preventive Medicine and Public Health and of the College of Education, as announced by Ruth E. Boynton, M.D., professor in the department. Dr. Grout for the last year has been special consultant in health education, U. S. Office of Education in Washington, prior to which she was Senior Supervisor of Health Education with the Tennessee Valley Authority, Chattanooga, Tenn.

GUNNAR GUNDERSEN, M.D., of La Crosse, Wisc., was recently elected President of the Wisconsin State Board of Health.

FRANK J. HILL, M.D., M.P.H.,† of Bismarck, N. D., who has been Acting State Health Officer for North Dakota for the past 18 months, has been appointed State Health Officer by the North Dakota Public Health Advisory Council for a term of 4 years.

THOMAS F. MANCUSO, M.D., Assistant Surgeon, U. S. Public Health Service, reserve, who has been on assignment to the Michigan Department of Health, has been named to succeed HAROLD T. CASTBERG, M.D.,† Passed Assistant Surgeon, U. S. Public Health Service, who has been organizing the Oregon State Industrial Hygiene Division. Dr. Castberg has been assigned to the California Bureau of Industrial Health, of which he formerly served as Acting Chief.

MRS. MEREDITH NICHOLSON, JR., of Indianapolis, Ind., has been appointed first full-time Executive Secretary of the Indianapolis Social Hygiene Association, effective July 1. Mrs. Nicholson is a member of the Indianapolis Board of Health and Charities and has long been active in social work in Indianapolis.

REGINALD C. SHERWOOD, PH.D.,† of St. Paul, Minn., Food Chemist, has been appointed by RUSSELL M. WILDER as his Assistant Chief in the civilian food requirements branch of the Food Distribution Administration at the Department of Agriculture in Washington, D. C.

MARY SOULES, M.D., M.P.H.,† who has been Assistant Director of Maternal and Child Hygiene for the North Dakota State Department of Health, Bismarck, N. D., has been appointed Director of that division, effective August 1, in place of ROBERT G. WHITE, M.D., M.P.H.* Dr. White was recently appointed Director of the Burke-Minot-Ward District Health Unit, effective August 1.

I. F. THOMPSON, M.D.,* Commissioner of Health in Racine, Wisc., was recently appointed a member of the Wisconsin State Board of Health and is serving as Vice President of the Board.

Eastern States

LEAH BLAISDELL, R.N.,* has been appointed as Director of the Henry Street Visiting Nurse Service, New York, N. Y., effective July 15. For the last 5 years Miss Blaisdell has served Henry Street as Assistant Director, previous to which time she

* Fellow A.P.H.A.
† Member A.P.H.A

was for some years Educational Consultant in Public Health Nursing with the New York State Department of Health, Albany.

LEVERETT D. BRISTOL, M.D., DR.P.H.,* of Montclair, N. J., who was named as State Director of Health of New Jersey in July, has declined the appointment. Dr. Bristol is Health Director of the American Telephone and Telegraph Company in New York, N. Y.

GEORGE CAMPANA, M.D., M.P.H., formerly Assistant District State Health Officer in New York, and recently of New Rochelle, N. Y., has been appointed State Epidemiologist and Director of the Division of Preventable Diseases for North Dakota, in Bismarck, N. D. He received his public health training at Johns Hopkins University, and has had public health experience in New York City and State Departments, and in Delaware.

KATHERINE FAVILLE, R.N.,* who since 1937 has been Executive Director of the Henry Street Visiting Nurse Service, New York, N. Y., has resigned, according to an announcement made by the Service in July. Miss Faville is Chairman of the Committee in charge of recruitment of nurses for the National Nursing Council for War Service, New York, N. Y.

GRACE MACLEOD, PH.D., has been named in charge of a special planning committee to carry out the city nutrition program originally set up by the New York Department of Health to disseminate information in the best use of the available food supply in terms of a well balanced diet. The special planning group will be part of the Coördinating Committee sponsoring the program.

RUTH A. PARMELEE, M.D., M.P.H.,† who received her degree in public health recently from the Harvard School of Public Health, Boston, has sailed for Syria enroute to Greece as a missionary of the American Board of Commissioners for Foreign Missions, Boston. Dr. Parmelee has served in the Near East since 1914.

Southern States

JOHN A. COWAN, M.D., M.S.P.H.,* Health Officer of Sioux City, Iowa, has been appointed Venereal Disease Officer for the Oklahoma State Department of Public Health, succeeding EUGENE A. GILLIS, M.D., M.P.H.,* Passed Assistant Surgeon, U. S. Public Health Service, who has held the position for 4 years on loan from the Public Health Service. Dr. Gillis is being transferred to Austin, Tex.

RICHARD O. C. GREEN, M.D., of Alexandria, La., formerly Director of the Rapides Parish Health Unit, has been named to a similar position with the Webster Parish Health Unit, succeeding EDMOND G. KLAMKE, M.D., M.P.H.,† of Minden.

STEPHEN V. LUDDY, D.D.S., M.P.H.,† who has been director of the Bureau of Dental Hygiene in the West Virginia State Health Department, Charleston, has resigned to accept a position with the Virginia State Board of Health, Richmond. Temporarily he is assigned to the City Health Department, Alexandria, as director of the city school dental health program. Dr. Luddy formerly was Director of the Division of Oral Hygiene in the North Dakota State Health Department.

JOHN E. OFFNER, M.D., of Weston, W. Va., has been appointed to succeed CLIFTON F. MCCLINTIC, M.D.,† as State Health Commissioner of West Virginia, a position Dr. McClintic has held since 1941. Dr. Offner has for 10 years been Superintendent of the Weston State Hospital.

* Fellow A.P.H.A.
† Member A.P.H.A.

BRIGADIER GENERAL JAMES STEVENS SIMMONS,† A.U.S., Director of the Division of Preventive Medicine, Office of the Surgeon General, U. S. Army, Washington, D. C., has been appointed a member of the Visiting Committee for the Harvard School of Public Health, Boston, Mass., according to an announcement by the Board of Overseers of Harvard College.

MARTIN B. WOODWARD, M.D., C.P.H.,* Registrar, State Board of Health, Columbia, S. C., has been named as Director of the Bureau of Vital Statistics of West Virginia, succeeding FRANKLIN H. REEDER, M.D., who is in the military service. Dr. Woodward has served as Director of a similar bureau in the South Carolina Health Department for several years past.

Western States

PAUL R. ENSIGN, M.D.,† has resigned as Director of the City and County Health Unit in Boise, to accept a position as Pediatric Consultant of the Division of Maternal and Child Health of the Georgia Department of Public Health.

ALAN L. HART, M.D.,† of Boise, Idaho, Consultant in Tuberculosis for the Idaho State Department of Public Health and the Idaho Tuberculosis Association, has been granted a leave of absence by the State Department to accept a temporary assignment as roentgenologist at the induction center for the armed forces in Seattle.

CLIFFORD KUH, M.D., DR.P.H.,† has resigned as Director of the California State Bureau of Industrial Health, to join the Permanente Foundation in California.

HOWARD W. LUNDY, DR.P.H.,* formerly Professor of Bacteriology and Public Health, State College of Washington, Pullman, Wash., was appointed Health Education Coördinator in charge of the informational section of the Division of Public Health Instruction, Illinois State Department of Public Health, Springfield.

LELAND E. POWERS, M.D.,† Health Officer of Tacoma, Wash., has been appointed Director of the Washington State Department of Health. He succeeds DONALD G. EVANS, M.D.,† of Seattle, who, according to *Northwest Medicine*, will enter private practice.

HUBERT O. SWARTOUT, M.D., DR.P.H.,† was appointed Health Officer of Los Angeles County, Calif., on June 17. He had been Acting Health Officer.

JOHN W. UNIS, M.D., of Seattle, Wash., has been appointed Medical Supervisor for the Department of Social Security. He succeeds JOHN M. FLUDE, M.D., who resigned to enter private practice in California.

LLOYD E. WEBSTER, of Los Angeles, Calif., has been appointed Director of Health Activities for the Los Angeles County Board of Education.

ROBERT H. WELDING, M.D., of Ellensburg, Wash., has been named Health Officer of Kittitas County.

Hawaii

LEO BERNSTEIN, M.D.,† Passed Assistant Surgeon (R), U. S. Public Health Service, who has been Health Officer on Kauai, has been transferred to the position of Health Officer for the Island of Hawaii in the Territory of Hawaii. His address is care of the Board of Health at Hilo, Hawaii, T. H.

CONFERENCES AND DATES

American Congress of Physical Therapy—22nd Annual Scientific and Clinical Session. Palmer House, Chicago, Ill. September 8–11.

* Fellow A.P.H.A.
† Member A.P.H.A.